

nsus  
EF  
AD  
715  
52  
524  
747a  
7

REFERENCE COPY

RECEIVED 1987

1987

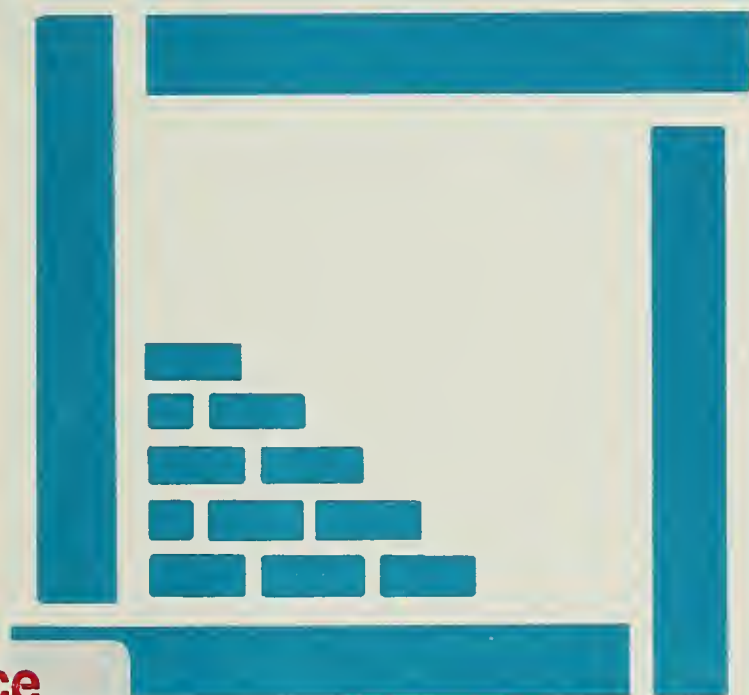
# Census of Construction Industries

CC87-I-7

INDUSTRY SERIES

## Bridge, Tunnel, and Elevated Highway Construction Contractors

Industry 1622



erence

from this room

U.S. Department of Commerce  
BUREAU OF THE CENSUS

Bureau of the Census  
Library

# ACKNOWLEDGMENTS

Many persons participated in the various activities of the 1987 Census of Construction Industries.

The overall planning and review of the census operations were performed by the staff of the Office of the Assistant Director for Economic and Agriculture Censuses.

This report was prepared in the Construction Statistics Division. **Barry A. Rappaport**, Assistant Division Chief for Industry Surveys, was responsible for the overall planning, management, and coordination of the census of construction industries. Planning and implementation were under the direction of **A. William Visnansky**, Chief, Census Operations Branch, with primary staff assistance by **Juliana Van Berkum**, **Barbara J. Hadden**, **Edward R. Glover**, **Susan L. Hostetter**, **Shirley M. Baker**, and **Carolyn J. Stone**. Under the direction of **Jesse Pollock**, **Edward K. Ricketts** and **Dennis K. Duke** developed the sampling plans and variance and estimation specifications.

Systems and procedures for mailout, receipt, correspondence, data input, industry classification, other clerical processing, administrative record processing, and quality control, along with the associated electronic computer programs, were developed in the Economic Surveys Division, **W. Joel Richardson**, Chief.

Mailout preparation and receipt operations, clerical and analytical review activities, data keying, and geocoding review were performed by the staff of the Data Preparation Division, **Joseph S. Harris**, Chief.

Geographic coding procedures and associated computer programs were developed by the staff of the Geography Division, **Robert W. Marx**, Chief.

The computer processing systems were developed and coordinated in the Economic Programming Division, **Barry M. Cohen**, Chief, and **H. Ray Dennis**, Assistant Chief. **Sarah W. Baumgardner**, Chief, Construction Census Branch, was responsible for the design and implementation of the computer systems. The computer programs were prepared under the supervision of **Barbara L. Lambert**, assisted by **Herbert Isham** of the Construction Statistics Division. **Linda M. Mersh** and **James Dallmann** assisted in establishing and maintaining the production control system.

Computer processing was performed in the Computer Services Division, **Marvin D. Raines**, Chief.

Planning, design, review, and composition of report forms were performed in the Administrative Services Division, **Michael G. Garland**, Chief.

The staff of the Publications Services Division, **Walter C. Odom**, Chief, performed publication planning, design, composition, editorial review, and printing planning and procurement. **Bernadette J. Beasley** provided publication coordination and editing.

Special acknowledgment is also due the many businesses whose cooperation has contributed to the publication of these data.

If you have any questions concerning the statistics in this report, call (301) 763-7546.

# **1987**

## **Census of Construction Industries**

---

CC87-I-7

INDUSTRY SERIES

### **Bridge, Tunnel, and Elevated Highway Construction Contractors**

Industry 1622

---

Issued January 1990



**U.S. Department of Commerce**  
**Robert A. Mosbacher**, Secretary  
**Thomas J. Murrin**, Deputy Secretary  
**Michael R. Darby**, Under Secretary  
for Economic Affairs

**BUREAU OF THE CENSUS**

---



**BUREAU OF THE CENSUS**  
**C. L. Kincannon, Deputy Director**

**Charles A. Waite**, Associate Director for  
Economic Programs  
**Roger H. Bugenhagen**, Assistant Director for  
Economic and Agriculture Censuses

**Thomas L. Mesenbourg**, Chief,  
Economic Census Staff

**CONSTRUCTION STATISTICS DIVISION**  
**Leonora M. Gross, Chief**

---

**Library of Congress Cataloging-in-Publication Data**

Census of construction industries (1987).

Industry series.

1987 census of construction industries.

Industry series.

"CC87-I-1—CC87-I-28."

"Issued September 1989—February 1990."

1. Construction industry—United States—Statistics.

2. Building trades—United States—Statistics.

I. United States. Bureau of the Census.

HD9715.U52C46 1989 338.4'7624'0973021 88-22147

---

For sale by Superintendent of Documents, U.S. Government  
Printing Office, Washington, DC 20402.



# INTRODUCTION

	Page
PURPOSE AND USES OF THE ECONOMIC CENSUSES .....	III
AUTHORITY AND SCOPE .....	III
AVAILABILITY OF THE DATA .....	III
WHAT'S NEW IN 1987 .....	III
HISTORICAL INFORMATION .....	IV
AVAILABILITY OF MORE FREQUENT ECONOMIC DATA .....	IV
SOURCES FOR MORE INFORMATION .....	IV
CENSUS OF CONSTRUCTION INDUSTRIES—SCOPE AND CLASSIFICATION .....	IV
ESTABLISHMENT BASIS OF REPORTING .....	V
SAMPLE DESIGN, ESTIMATION PROCEDURES, AND RELIABILITY OF ESTIMATES .....	VI
CENSUS REPORT FORMS .....	VIII
DATA PROCESSING .....	VIII
GEOGRAPHIC CLASSIFICATION .....	VIII
DUPLICATION IN VALUE OF CONSTRUCTION WORK .....	VIII
SPECIAL TABULATIONS .....	VIII
COMPARABILITY OF CENSUS OF CONSTRUCTION INDUSTRIES DATA WITH OTHER DATA .....	IX
ABBREVIATIONS AND SYMBOLS .....	IX

## PURPOSE AND USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source of facts about the structure and functioning of the Nation's economy. They provide essential information for government, business, industry, and the general public.

*Economic censuses furnish an important part of the framework for such composite measures as the gross national product, input-output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.*

*Policy-making agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.*

*State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.*

*Trade associations study trends in their own and competing industries, and keep their members informed of market changes.*

*Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.*

## AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic censuses every 5 years, covering years ending in 2 and 7. The 1987 Economic Censuses consist of the—

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Transportation
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1987 Census of Agriculture and 1987 Census of Governments are conducted separately.) The next economic censuses are scheduled to be taken in 1993 covering the year 1992.

## AVAILABILITY OF THE DATA

The results of each of the economic censuses are available in printed reports, for sale by the U.S. Government Printing Office, and on microfiche, computer tape, compact discs with read-only memory, and flexible diskettes, for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Census Bureau, Washington, DC 20233. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State Data Centers in every State and Business and Industry Data Centers in many States also supply economic census statistics.

## WHAT'S NEW IN 1987

Several changes have taken place for the 1987 censuses. Data will be reported on the basis of the newly revised Standard Industrial Classification (SIC) system with selected reports including "bridge tables," linking the old and new classification systems. A new set of metropolitan



areas has been adopted, and more detailed information will be available for businesses with no paid employees. For additional information on these changes, review the subsequent text.

One important change involves receipts of contractors and builders. Prior to 1987, the Census of Construction Industries collected receipts as the primary measure of construction activity. For 1987, the census collected the "value of construction work done" to better measure actual construction activity done during the year. Differences between the two concepts occur when work is done in one year and payment received either from the prior or in the succeeding year. In addition, receipts do not include work a contractor performs for its own account and use.

## HISTORICAL INFORMATION

The economic censuses have been taken together as an integrated program at 5-year intervals since 1967, and before that for 1963, 1958, and 1954. Prior to that time, the individual censuses were taken separately at varying intervals.

The economic censuses trace their beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 manufactures census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade, and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 economic censuses were the first to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. These were the first censuses to be taken by mail, using lists of firms provided by the administrative records of other federal agencies. Since 1963, administrative records have also been used to provide basic statistics as well for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic censuses, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The Census of Construction Industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The Census of Transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks. New for 1987 are publications reporting on business establishments engaged in several transportation industries, paralleling the data on establishments in

other sectors. This is part of a gradual expansion in coverage of industries previously subjected to government regulation. The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic censuses in 1972 along with the Survey of Women-Owned Businesses.

Economic censuses have also been taken in Puerto Rico since 1909, in the Virgin Islands and Guam since 1958, and in the Northern Mariana Islands since 1982.

Statistical reports from the 1982 and earlier censuses provide historical figures for the study of long-term time series, and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

## AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the censuses provide complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, the results of which appear in publication series such as *Current Construction Reports* (building permits, housing starts, and value of new construction put in place), *Current Business Reports* (retail and wholesale trade and service industries), the *Annual Survey of Manufactures*, *Current Industrial Reports*, and the *Quarterly Financial Report*. Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the censuses. The *County Business Patterns* program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

## SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1987 Economic Censuses and Related Statistics*. More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1987 Economic Censuses*. Contact Customer Services for information on availability.

## CENSUS OF CONSTRUCTION INDUSTRIES—SCOPE AND CLASSIFICATION

The 1987 Census of Construction Industries covers all employer establishments (establishments with payroll) primarily engaged in contract construction, construction on their own account for sale, or in subdividing real property



into lots as defined in the 1987 Standard Industrial Classification (SIC) Manual.<sup>1</sup> This industrial classification system has been developed by experts on classification in government and private industry under the guidance of the Office of Management and Budget and is in general use among government agencies and among organizations outside the government.

**Contract construction**—The SIC manual defines construction in three broad types of activity that follow:

1. **Building construction by general contractors or by operative builders**—General building contractors are primarily engaged in the construction of dwellings, office buildings, stores, farm buildings, and other building projects. Operative builders who build on their own account for sale are also included here. However, investment builders who build structures on their own account for rent are classified in Real Estate.
2. **Heavy construction general contractors**—Heavy construction general contractors are primarily engaged in the construction of highways, bridges, pipelines, sewers and water lines, marine construction, power, and petro-chemical plants and other nonbuilding construction projects. Special trade contractors are classified in heavy construction if they are specifically engaged in the following activities: grading for highway and airport runways; guardrail construction; installation of highway signs; asphalt and concrete construction of roads, highways, streets and public sidewalks; trenching, cable laying; conduit construction; underwater rock removal; pipeline wrapping; or land clearing and leveling.
3. **Construction by other special trade contractors**—These contractors include plumbers, painters, carpenters, electricians, brick layers, roofers, etc. For the most part, they perform their work at the site of construction, although they may also have shops where they perform work incidental to the job site.

General contractors in both the building and the heavy construction field usually assume responsibility for an entire construction project, but may subcontract to others all of the actual construction work or those portions of the project requiring special skills or equipment. Special trade contractors may work for general contractors, for other subcontractors, or may work directly for the owner of the property.

In addition to the industries classified in the SIC manual as Construction, this census also includes one industry

classified in the Real Estate area, SIC 6552, Land Subdividers and Developers, Except Cemeteries. These establishments are engaged in subdividing real property into lots and in developing it for sale on their own account.

Each establishment receiving a questionnaire was requested to report the percent of total dollar value of business done for each kind-of-business activity engaged in during 1987. This information was used for the computer assignment of appropriate industry classifications. During this work, various tests were also made using other data reported on the questionnaire. The proportion of construction work to total business was checked to verify that the establishment was primarily in construction. Also taken into consideration were the types of structures worked on during the year and the extent of work undertaken for other contractors.

Construction establishments often engage in various construction activities. It is necessary, however, to assign a single industry code to the establishment based on its major activity. Therefore, the statistics shown for an industry reflect not only the primary activity of the establishments in the industry, but also their secondary activities. The industry reports, however, do present data on the extent of secondary activities.

A revised edition of the SIC Manual was issued in 1987. Minor modifications were made to three industries in the construction sector: SIC 1611, Highway and Street Construction Contractors, Except Elevated Highways; SIC 1629, Heavy Construction Contractors, N.E.C; and SIC 1771, Concrete Work Special Trade Contractors. The extent of these modifications are explained in the specific texts for those industries. "Bridge tables" are also included showing selected data tabulated using both the previous classification system and the 1987 revision.

## ESTABLISHMENT BASIS OF REPORTING

The census of construction industries is conducted on an establishment basis. A "construction establishment" is defined as a relatively permanent office or other place of business where the usual business activities related to construction are conducted. With some exceptions, a relatively permanent office is one which has been established for the management of more than one project or job and which is expected to be maintained on a continuing basis. Such "establishment" activities include, but are not limited to estimating, bidding, purchasing, supervising, and operation of the actual construction work being conducted at one or more construction sites. Separate construction reports were not required for each project or construction site.

Companies with more than one construction establishment were required to submit a separate report for each such establishment operated during all or any part of 1987. The census of construction industries figures represent a summary of records for individual establishments rather than for companies. The census tabulations, therefore, differ from those prepared on a company basis.

<sup>1</sup>Standard Industrial Classification Manual: 1987. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.



If an establishment engaged in construction and one or more distinctly different lines of economic activity (wholesale or retail trade, service, manufacturing, mining, etc.) at the same place of business, it was requested to file a separate report appropriate to each activity, provided that the activity was of substantial size and separate records were maintained or substantially accurate estimates could be prepared.

If a separate establishment report could not be prepared for each activity, then a construction report was requested covering all activities of that establishment providing that the 1987 value of construction work exceeded the gross receipts from each of its other activities.

Construction businesses with no payroll during 1987 (nonemployers) were not required to file census reports. Tabulation of data for these businesses are based on administrative records and are shown only in U.S. summary publications and the geographic area reports series. Refer to the section on "Sample Design" for details. Foreign construction activities were not included in this census.

## **SAMPLE DESIGN, ESTIMATION PROCEDURES, AND RELIABILITY OF ESTIMATES**

The companies included in the 1987 Census of Construction Industries were identified as part of an operation common to all 1987 Economic Censuses. Construction companies were divided into employers (companies with payroll) and nonemployers (companies without payroll). Statistical information for the employers was obtained in the census by a survey which included all medium size and large employers and a sample of the smaller ones. Census reports were not required from the nonemployers. Statistics on them were obtained from administrative records of other agencies of the Federal Government.

### **Employer Companies**

**Developing the sampling frame for employer companies**—This operation started with obtaining a list of all construction companies in the active records of the Internal Revenue Service (IRS) which were subject to payment of Federal Insurance Contributions Act taxes. The basic source for this list has been the Internal Revenue Service Business Master File, a comprehensive list of companies engaged in business activities in the United States. The file contains the name, address, and form of ownership of each company and also indicates whether or not the company is subject to the FICA. Each company in this file is assigned a unique employer identification (EI) number which it uses in filing its various reports with the IRS. The Social Security Administration (SSA) maintains a similar list using the same identification numbers, which also contains information on the industrial classification of each company. The Bureau of the Census obtained both of these lists and combined them.

Under special arrangements which safeguarded the confidentiality of the information, the Bureau also obtained administrative records data on payrolls and receipts and added these data to the combined list. The list, thus created from the IRS-SSA information, was a list of employer companies. However, for the 1987 Economic Censuses the basic reporting unit is the "establishment." Therefore, steps were taken to identify the individual establishments of those companies which operate more than one place of business. The information for making this determination was obtained by means of the Company Organization Survey (COS), an annual canvass of all known multiestablishment companies and large single-establishment companies. Thus, the 1987 Economic Census list for single-establishment employer companies was obtained from the IRS-SSA, but the list of establishments of multiestablishment employer companies was obtained directly from those companies in the COS. Refer to the section on "Establishment Basis for Reporting" for details.

In general, the IRS-SSA list provided sufficient industrial classification data to assign a company to the proper economic census, but there were a number of companies for which this information was inadequate or unavailable. A special form, NC-9923, General Schedule, was mailed to all such companies, requesting information on the nature of the company's activities. From the information reported, the company was given an industrial classification code and assigned to the appropriate economic census. Since construction companies found in this way were identified only after the regular census mailing had taken place, they were treated as a supplement to the basic list.

**Selecting the employer sample**—The sample was designed to provide reliable State and metropolitan area estimates for each construction industry. It consisted of all construction establishments in multiestablishment companies, all single-establishment companies with estimated total employment of 20 employees or more, and a probability sample of single-establishment companies with estimated employment of fewer than 20 employees.

Supplementing the sample were construction companies identified from the NC-9923, General Schedule. Also affecting the sample were the misclassified companies; i.e., companies included in the samples of other trade areas which reported they were construction companies and companies originally classified in construction which reported they were not construction companies.

Of the 533,000 single-establishment employer companies initially classified as construction companies, 147,000 were included in the sample. All of the 13,000 establishments of multiestablishment companies were included in the sample. There was a net increase in the sample of 60,000 establishments resulting from establishments originally unclassified (receiving the NC-9923) or misclassified.

The probability sample of the smaller single-establishment companies was a stratified random sample. Strata were formed from all establishments with the same initial four-digit SIC code, in the same State, in the same metropolitan



area or in the balance of the State, and in the same size class based on estimated total employment. If the four-digit SIC code for an establishment was incomplete, the establishment was placed in a stratum for miscellaneous companies. Because they were small, all companies were included in the sample for the following three industries: SIC 1622, Bridge, Tunnel, and Elevated Highway Construction Contractors; SIC 1795, Wrecking and Demolition Work Special Trade Contractors; and SIC 1796, Installation or Erection of Building Equipment Special Trade Contractors.

**Estimation procedures for 1987 and 1982 data—**Since all larger employer companies and some smaller ones were included in the census, sample estimation was required only for the universe of companies not selected with certainty. The published statistics are the totals of the estimates for the sampled companies and the aggregates for the certainty companies. All estimates for 1987 and 1982 published here are simple unbiased estimates of the form:

$$x'_c = \frac{\sum_{i=1}^{n_c} x_i}{p_i}$$

- where:  $x'_c$  is the simple unbiased estimate of a characteristic for a publication cell.
- $x_i$  is the reported value of a characteristic for an individual establishment in the publication cell.
- $p_i$  is the selection probability of that firm.
- $n_c$  is the number of firms in the sample for the cell.

Data for certain characteristics were reported as a percentage of the dollar value of business done. Before this formula was applied to those characteristics, it was necessary to convert the reported percentages into dollars.

**Reliability of employer statistics—**Since the estimates for employer establishments in these reports are based on the samples, they are subject to sampling variability and may be expected to differ from results which would have been obtained if a complete census had been taken using the same forms and procedures. The sampling errors shown in the tables were estimated directly from the sample reports, using methods appropriate for the sample design and form of estimation used.

The relative standard error is a measure of sampling variability, i.e., the variation that might occur by chance because only a sample of the population is surveyed. As calculated for this report, the relative standard error also partially reflects the effect of random errors of response and processing, but it does not take into account the effect of any consistent biases due to those types of errors. The chances are about 68 out of 100 that an estimate from the

sample would differ from a complete census by less than the relative standard error. The chances are about 95 out of 100 that the difference is less than twice the relative standard error and about 99 out of 100 that it is less than 2-1/2 times the relative standard error. Individual estimates with large relative standard errors have been shown in the published tables. Any such estimates should be used with caution. The very large relative standard errors generally occur for the smaller estimates.

Relative standard errors have been calculated for all of the published statistics, although they are shown for each statistic only in the tables presenting detailed statistics. Other tables show relative standard errors only for certain characteristics because of lack of space.

As calculated for this report, the relative standard error measures certain nonsampling errors, but does not measure any systematic biases in the data. Bias is the difference, averaged over all possible samples with the same size and design, between the estimates and the true value being estimated. Nonsampling errors can be attributed to many sources: inability to obtain information about all cases in the sample; definitional difficulties; differences in interpretation of questions; inability or unwillingness of respondents to provide correct information; and errors made in processing the data. Although no direct measurements of the biases have been obtained, it is believed that most of the important response and operational errors were detected in the course of reviewing the data for reasonableness and consistency.

A potential source of bias is in the imputation for those establishments that have not responded by the time of final publication. Data were estimated for establishments that did not report by that date, although selected establishments were contacted again to obtain as much information on the telephone as possible. Some publication cells in which more than 40 percent of the data were not reported have been suppressed.

**Nonemployer Companies**

As described earlier, the information derived from the business income tax returns of all companies was matched to the census employer file on the basis of common identification numbers. Those business income tax returns which could not be matched, were further classified on the basis of several characteristics. Returns with characteristics consistent with companies without payroll were treated as nonemployers. The nonemployer construction companies were not required to file census reports.

For "number of establishments," each separate income tax return was assumed to be an establishment. "All business receipts" was based on receipts information reported on the tax return.

Since no sampling was involved in the nonemployer establishments, the statistics for nonemployers are not subject to sampling variability. However, these data are subject to an unknown amount of reporting and processing errors which could not be detected by the Census Bureau.



## CENSUS REPORT FORMS

Information for the 1987 Census of Construction Industries was obtained from employer establishments primarily through the use of twenty-four questionnaires, determined by industry classification and size. Standard forms and short forms were developed for each of the following SIC groups: 15, 16, 171, 172, 173, 174, 175, 176, 177, 178, and 179 and for the establishments classified in SIC 6552. Establishments with 50 or more employees all received the standard form. A sub-sample of establishments with fewer than 50 employees received short forms instead of the standard forms. The short forms covered only major items and omitted some of the detail found in the longer forms.

In reviewing and developing the questionnaires, comments and recommendations were elicited from construction trade associations and appropriate advisory groups. The Bureau surveyed several thousand firms representing all economic activities to gain insight into the way companies maintain records and to see whether new information could be collected.

## DATA PROCESSING

The 1987 census report forms were mailed out in December 1987. They were mailed from and returned to the Census Bureau's Data Preparation Division in Jeffersonville, Ind., where routine editing and coding of the report forms were also accomplished. Collection of these report forms was essentially completed in July 1988.

The returned reports underwent extensive processing. A preliminary edit done at the time of data entry identified obviously deficient reports and reports needing clarification. When necessary, these problems were resolved by further contact with the respondents. Next, the data were transmitted to Census Bureau headquarters near Washington, DC.

Data records, then, underwent a detailed computer review and analysis. The records containing significant problems were referred for further analytical review and, if necessary, contacts were made with the respondents. The computer performed most classification coding (such as industry coding, geographic coding, and size coding), and imputation for missing items or for reports not received in time for tabulation. The imputation was performed on an industry (or industry group)-State (or geographic group) basis using all available response and administrative data.

The data records were then tabulated on an industry basis. Industry totals were subjected to analytical review, and selected statistics were prepared for the preliminary reports. Corrections resulting from this review were made to the computer records and final tabulations were produced.

The review of a preliminary report for an industry often uncovered the need for corrections or revisions to the data for another industry for which a preliminary report had already been published. The final reports incorporate all

revisions and corrections made during the review of the preliminary reports and contain considerable more data than were published in those reports.

## GEOGRAPHIC CLASSIFICATION

Information for the 1987 Census of Construction Industries' final industry report series is classified on the basis of two types of geographic distributions: (1) physical location of the establishment, and (2) location of construction work. A separate code was assigned on each basis allowing us to present data by both physical locations of the establishment and location of construction work.

The geographic area reports series presents similar data by industry for each State (physical location of the establishment) and for selected MSA's, CMSA's and PMSA's.

## DUPLICATION IN VALUE OF CONSTRUCTION WORK

The aggregate of value of construction work reported by all construction establishments in each of the several industry, geographic area, or other groupings in this census, contains varying amounts of duplication, since the construction work of one firm may be subcontracted to other construction firms and also be included in the subcontractors' value of construction work. To avoid this duplication, a "net" value of construction work figure has been derived for each establishment by subtracting the costs for construction work subcontracted to others from the value of construction work.

Duplication in value of business between other construction and nonconstruction industries, results from the use of products of these other industries as input materials by construction establishments. "Value added," avoids this duplication and is, for most purposes, the best measure for comparing the relative economic importance of industries or areas. "Value added," is defined in the 1987 Census of Construction Industries as equal to dollar value of business done less costs for construction work subcontracted to others and payments for materials, components, supplies, and fuels. However, for SIC 6552 and SIC 1531 where land receipts are significant, land receipts are also subtracted from dollar value of business done.

## SPECIAL TABULATIONS

Special tabulations of data collected in the 1987 Census of Construction Industries may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact and detailed specifications of the type and format of the data to be provided, should be directed to the Chief, Construction Statistics Division, Bureau of the Census, Washington, DC, 20233.



To discuss a special tabulation before submitting specifications, call 301-763-7546.

**COMPARABILITY OF CENSUS OF CONSTRUCTION INDUSTRIES DATA WITH OTHER DATA**

Data contained in the reports of the 1987 Census of Construction Industries are not the same as the data published in the Census Bureau's monthly Construction Reports, Series C30, Value of New Construction Put in Place. The main difference is that the C30 series covers all new construction put in place without regard to who is performing the construction activity, whereas the construction census figures cover both new construction and maintenance and repair work done by establishments classified in the construction industry. Significant amounts of construction are done by establishments classified outside of construction (in real estate, manufacturing, utilities and communications, for example), both as "force account" construction and construction done for others. In addition, the value in place series includes construction-related expenses such as architectural and engineering costs and the costs of materials supplied by owners which are normally not reflected in the Census of Construction.

Data contained in the reports of the census of construction industries may also differ from industry data in "Employment and Earnings Statistics," published by the Bureau of Labor Statistics, and "Statistics of Income," published by the Internal Revenue Service. These differences arise from varying definitions of scope, coverage, timing, classification, and methodology.

**ABBREVIATIONS AND SYMBOLS**

The following abbreviations and symbols are used in this publication:

- \* Sampling error exceeds 40 percent.
- \*\* Represents the sum of all employees during pay periods including 12th of March, May, August, and November, divided by 4.
- Represents zero.
- † Represents value of construction work less costs for construction work subcontracted to others. (See Duplication in Value of Construction Work.)
- †† Represents dollar value of business done less costs for construction work subcontracted to others, and costs for materials, components, supplies, and fuels. In SIC's 1531 and 6552, land receipts are also subtracted from dollar value of business done. (See Duplication in Value of Construction Work.)
- (D) Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
- (NA) Not available.
- (S) Withheld because estimate did not meet publication standards on the basis of either the response rate, associated relative standard error, or a consistency review.
- (W) Greater than zero but less than 1 percent.
- (X) Not applicable.
- n.s.k. Not specified by kind.

# Users' Guide for Locating Statistics in This Report by Table Number

Statistics	For U.S.	By State	By employment size	By size class of dollar value of business done	By type, class, ownership, kind of business, and location of construction <sup>1</sup>	By specialization in types of construction
Assets and depreciation (gross book value):						
Beginning of year—buildings, machinery and equipment.....	3					
End of year—total.....	1, 3	1	5	6		
End of year—buildings, machinery and equipment.....	3					
Depreciation charges during year—buildings, machinery and equipment.....	3					
Capital expenditures:						
Total capital expenditures.....	1, 3	1	5	6		
New buildings—machinery and equipment.....	3					
Used buildings—machinery and equipment.....	3					
Communication services, costs for.....	2					
Employees:						
All employees—average number.....	1, 2	1	5	6		8
Construction workers—average number.....	1, 2, 9	1, 9				
Other employees—average number.....	2					
Employer costs for fringe benefits—legally required and voluntary expenditures.....	2					
Establishments—number in business during year.....	1, 2, 4, 9	1, 9	5	6		8
Hours—construction workers:						
Total.....	1, 2, 9	1, 9	5	6		
Quarterly.....	2, 9	9				
Inventories.....	4					
Materials, components, supplies, and fuels—costs for.....	1, 2	1	5	6		
Payroll:						
First quarter, all employees.....	2					
Annual:						
All employees.....	1, 2	1	5	6		8
Construction workers.....	1, 2	1				
Other employees.....	2					
Power, fuels, and lubricants—costs for.....	2					
Proprietors and working partners.....	2					
Ratios, State.....	13	13				
Value and receipts:						
Dollar value of business done, total.....	2		5	6	11	
Value of construction work, total.....	1, 2, 4	1	5	6	2, 7, 10	8
For work subcontracted in from others.....	2					
Other business receipts and land receipts <sup>2</sup> .....	2					
Net value of construction work.....	1, 2	1	5	6		8
Value added.....	1, 2	1	5	6		8
Rental costs:						
Total.....	1, 2	1	5	6		
For machinery and equipment.....	2					
For buildings.....	2					
Repairs to buildings and other structures.....	2					
Repairs to machinery and equipment.....	2					
Selected industry ratios.....	12					
Subcontract work to others, costs for.....	1, 2	1	5	6		8

Note: Data for 1982 and earlier years are also available in some of these tables.

<sup>1</sup>Type—buildings, roads, etc. Class—new construction; additions, alterations, or reconstruction; or maintenance and repair work. Ownership—private or government owned.

<sup>2</sup>Land receipts are shown separately for SIC's 1531 and 6552 only.



# CONTENTS

## Bridge, Tunnel, and Elevated Highway Construction Contractors

[Page numbers listed here omit the prefix that  
appears as part of the number of each page]

	Page
Introduction .....	III
Users' Guide for Locating Statistics in This Report by Table Number .....	X
Summary of Findings .....	2

### FIGURES

1. Value of Construction Work by Type of Construction .....	3
2. Selected Costs Per Dollar Value of Business Done .....	3

### TABLES

#### Statistics for Establishments With Payroll

1. General Statistics by State: 1987 and 1982 .....	4
2. Detailed Statistics: 1987 and Earlier Census Years .....	6
3. Assets, Capital Expenditures, and Depreciation: 1987 and 1982 .....	7
4. Value of Inventories: 1987 and 1986 .....	8
5. Selected Statistics by Employment Size Class: 1987 and 1982 .....	8
6. Selected Statistics by Size Class of the Dollar Value of Business Done: 1987 and 1982 .....	9
7. Value of Construction Work by Type of Construction: 1987 and 1982 .....	10
8. Selected Statistics by Specialization in Types of Construction: 1987 .....	11
9. Quarterly Construction Worker Hours and Employment by State: 1987 .....	12
10. Value of Construction Work by Location of Construction Work: 1987 and 1982 .....	14
11. Dollar Value of Business Done by Kind of Business Activity: 1987 and 1982 .....	15
12. Selected Industry Ratios: 1987 and 1982 .....	16
13. Selected Industry Ratios by State: 1987 .....	17

Statistics for Establishments Without Payroll appear in the U.S. Industry Summary Report.

### APPENDIXES

A. Explanation of Terms .....	A-1
B. Standard Industrial Classification Titles for Industry Groups and Industries .....	B-1
C. Geographic Divisions and States .....	C-1

Publication Program .....	Inside back cover
---------------------------	-------------------

# SUMMARY OF FINDINGS

Establishments classified in this industry are primarily engaged in the construction of bridges; viaducts; elevated highways; and highway, pedestrian, and railway tunnels. General contractors primarily engaged in subway construction are classified in Industry 1629, Heavy Construction Contractors, Not Elsewhere Classified. For additional examples, refer to the 1987 Standard Industrial Classification (SIC) Manual published by the Office of Management and Budget, Executive Office of the President.

During 1987, the establishments with paid employees classified in this industry accounted for \$5.6 billion in total dollar value of business. Of this amount, \$5.5 billion were for the value of construction work. These establishments paid out \$1.8 billion for materials, components, and supplies and \$1.3 billion for construction work subcontracted to others. Costs for selected power, fuels, and lubricants for this industry were \$87.8 million. Value added for 1987 was \$2.4 billion.

There were 1,159 establishments with total employment averaging 47,494 during the year. Total payroll for 1987 was \$1.2 billion. Total hours worked by construction workers during the year were 76.2 million hours.

Larger establishments with 20 employees or more, while representing only 46 percent of the total number of employer establishments in this industry accounted for 91 percent of all business done.

A "construction establishment" is defined as a relatively permanent office, or other place of business, where the usual business activities related to construction are conducted. A separate census report was required from each sampled establishment covering domestic operations. Separate reports were not, however, required for each project or construction site.

In 1987, the value of construction work was collected to better measure actual construction activity done during the year. Construction receipts, as reported in earlier censuses, may have included the value of work done before or after the calendar year and may have excluded the value of work in progress during the calendar year. Receipts may have also excluded work done by builders engaged in construction for sale on their own account or for their own use. All dollar values are shown in current dollars for the years specified and have not been adjusted for inflation.

The data in this report are estimated from a sample survey and are subject to sampling variability as well as errors of response and nonreporting. The relative standard error shown in the tables is a measure of sampling variability. Descriptions of the sampling, estimating procedures, and data reliability are included in the Introduction.



Figure 1. **Value of Construction Work by Type of Construction**  
(Percent)

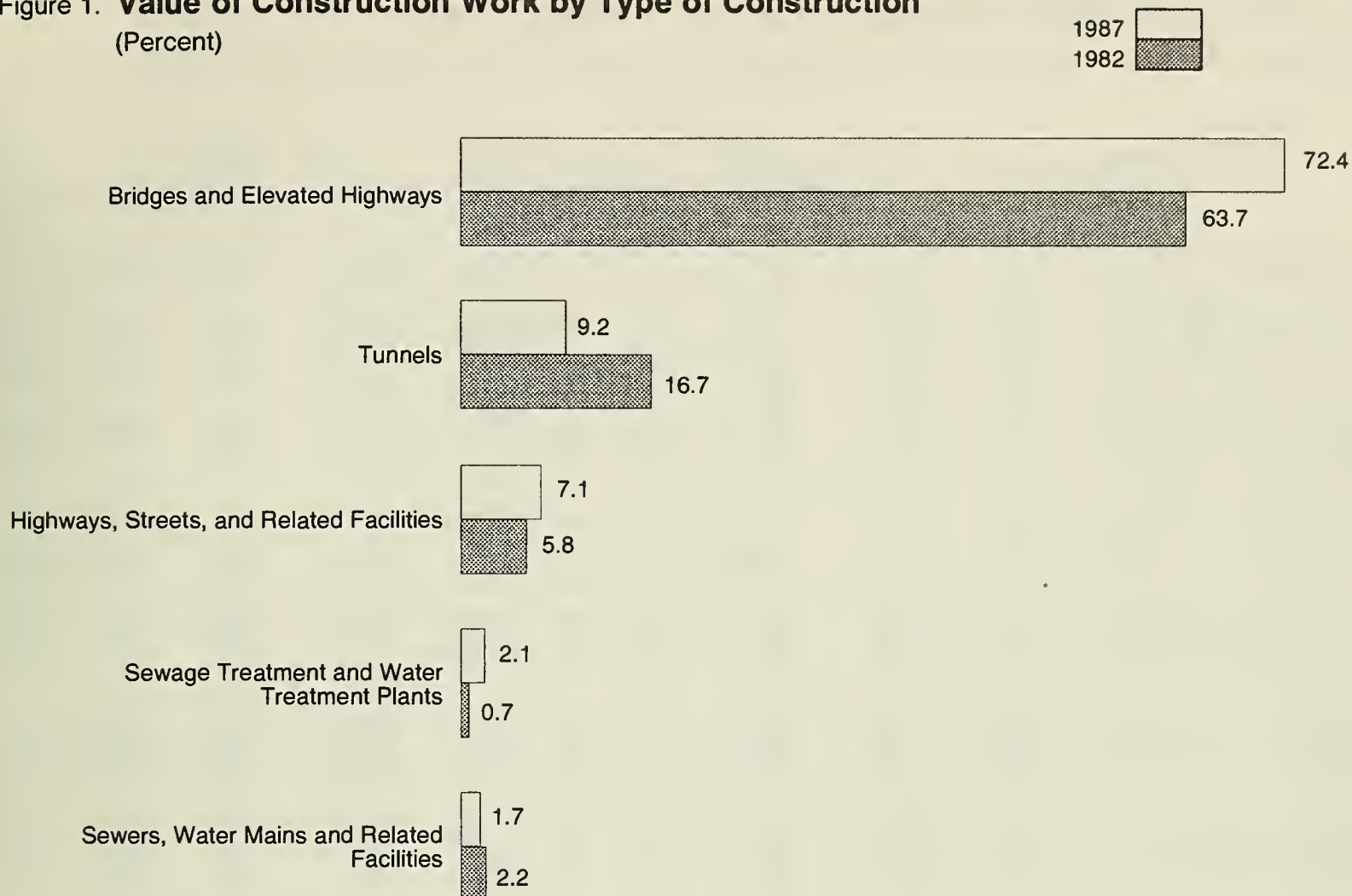
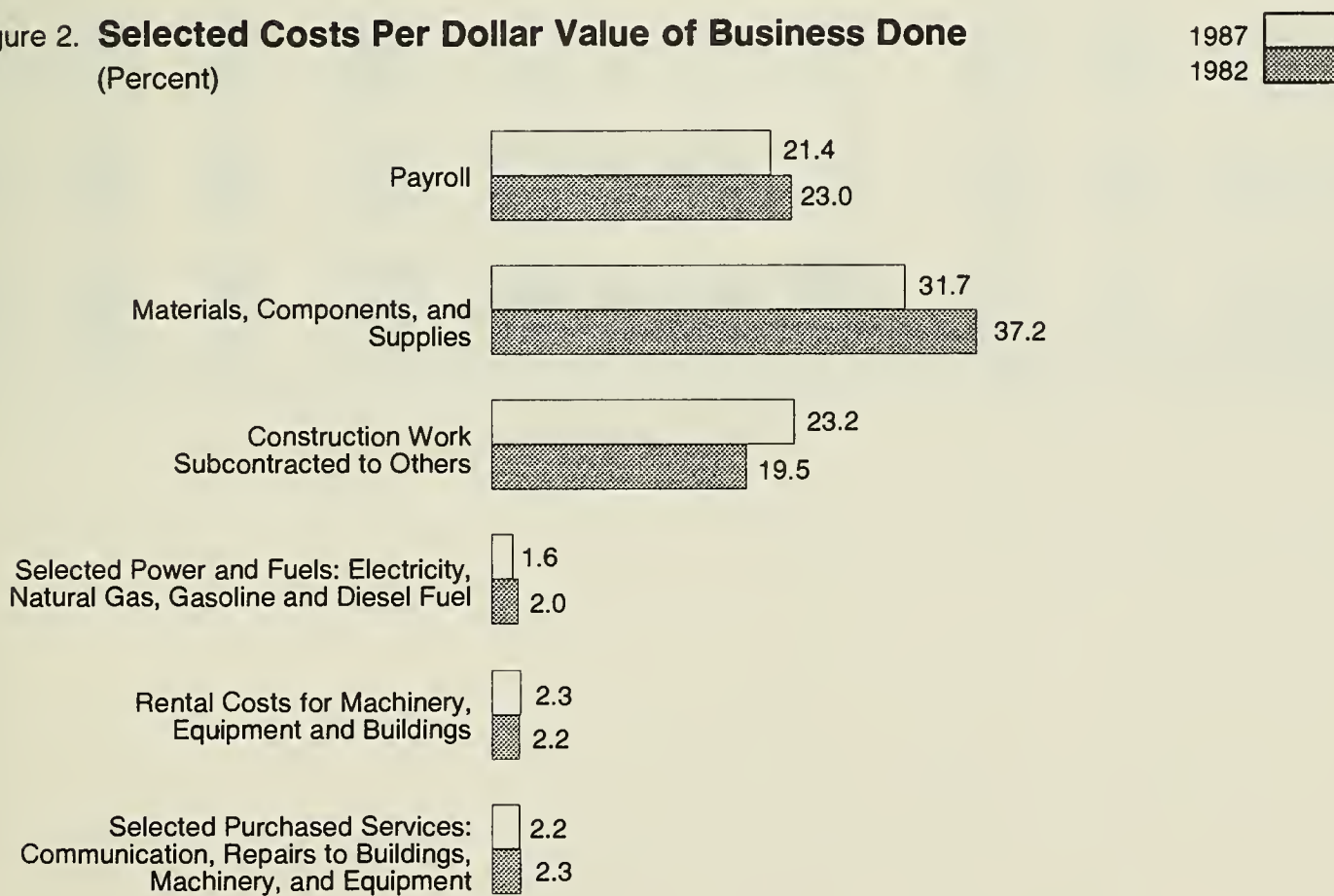


Figure 2. **Selected Costs Per Dollar Value of Business Done**  
(Percent)



**Table 1. General Statistics for Establishments With Payroll by State: 1987 and 1982**

[Thousand dollars. Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Location of establishment	1987							
	Number of establishments	Employees**		Payroll		Construction worker hours (thousands)	Value of construction work	Net value of construction work†
		All	Construction workers	All employees	Construction workers			
A	B	C	D	E	F	G	H	
United States .....	1 159	47 494	40 092	1 191 764	909 919	76 210	5 480 936	4 186 846
Alabama .....	13	530	461	11 017	8 602	943	57 804	45 436
Alaska .....	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Arizona .....	10	1 214	971	38 813	23 785	1 769	130 042	102 382
Arkansas .....	13	356	306	6 223	4 917	318	46 105	32 917
California .....	53	1 940	1 642	55 819	44 880	2 930	301 677	213 007
Colorado .....	18	693	602	14 391	12 210	1 130	108 254	64 602
Connecticut .....	24	1 068	884	35 191	27 122	1 883	150 625	134 975
Delaware .....	*3	*46	*32	1 599	*878	(S)	(D)	*5 892
District of Columbia .....	-	-	-	-	-	-	-	-
Florida .....	19	853	708	17 062	12 645	1 267	107 728	73 392
Georgia .....	21	1 212	936	26 237	17 949	2 107	122 850	95 045
Hawaii .....	-	-	-	-	-	-	-	-
Idaho .....	8	155	123	3 999	3 287	236	19 087	15 607
Illinois .....	57	2 393	2 054	61 309	47 730	3 673	257 699	200 690
Indiana .....	47	1 850	1 559	44 399	32 445	2 873	241 116	182 202
Iowa .....	36	1 019	876	21 546	17 655	1 811	112 782	91 063
Kansas .....	47	1 040	902	24 400	19 939	1 539	103 921	81 732
Kentucky .....	32	821	700	18 188	14 145	1 405	88 839	70 083
Louisiana .....	16	702	614	13 272	11 085	973	64 330	49 714
Maine .....	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Maryland .....	12	850	702	25 639	18 721	1 426	98 568	72 197
Massachusetts .....	19	514	433	14 303	11 338	815	60 456	46 072
Michigan .....	33	675	562	22 862	16 805	1 066	112 063	82 467
Minnesota .....	17	1 413	1 159	41 269	30 746	2 243	154 728	131 681
Mississippi .....	20	973	876	19 289	15 952	1 764	102 676	72 360
Missouri .....	58	1 457	1 235	28 169	21 620	1 944	140 984	115 676
Montana .....	*13	112	98	2 147	1 813	*121	7 460	6 705
Nebraska .....	29	292	241	5 255	4 065	461	24 245	19 077
Nevada .....	10	(D)	(D)	2 746	2 218	96	9 647	(D)
New Hampshire .....	5	130	106	3 320	2 388	182	15 740	14 034
New Jersey .....	28	1 581	1 281	52 000	36 871	2 448	213 386	172 722
New Mexico .....	*6	513	425	(D)	(D)	1 018	(D)	(D)
New York .....	58	3 583	3 147	89 461	72 124	5 292	323 040	249 203
North Carolina .....	26	1 694	1 465	34 967	27 242	2 924	144 088	105 262
North Dakota .....	5	218	184	5 271	4 169	378	21 090	17 343
Ohio .....	44	1 660	1 330	50 326	36 494	2 330	203 375	164 709
Oklahoma .....	31	649	572	12 499	9 283	963	62 085	55 887
Oregon .....	17	421	305	12 201	9 134	469	55 915	42 041
Pennsylvania .....	65	3 425	2 855	106 762	80 690	5 237	461 661	337 280
Rhode Island .....	*6	87	64	3 038	2 102	(D)	16 094	12 271
South Carolina .....	15	825	662	20 014	14 705	1 536	102 591	78 572
South Dakota .....	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Tennessee .....	43	1 230	1 081	23 908	19 477	2 480	114 007	92 361
Texas .....	64	3 950	3 478	77 635	64 904	7 482	400 159	309 592
Utah .....	4	(D)	(D)	(D)	(D)	(D)	(D)	8 949
Vermont .....	*11	305	268	6 569	5 393	428	30 722	25 670
Virginia .....	30	2 440	2 037	55 106	41 705	4 122	278 343	202 361
Washington .....	27	827	680	19 330	13 903	1 242	126 006	84 144
West Virginia .....	8	290	248	8 079	6 331	498	31 295	26 203
Wisconsin .....	16	977	786	34 488	23 111	1 591	148 661	114 613
Wyoming .....	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)

†In earlier censuses, construction receipts only were collected. In 1987, the value of construction work was collected to better measure actual construction activity done during the year.



1987—Con.						1982			Relative standard error of estimate (percent) for column—			Location of establishment
Value added††	Cost of materials, components, supplies, and fuels	Cost of construction work sub-contracted to others	Rental cost for machinery, equipment, and buildings	Capital expenditures, other than land	End-of-year gross book value of depreciable assets	All employees**	Total construction receipts†	Value added††				
I	J	K	L	M	N	O	P	Q	B	H	M	
2 430 434	1 854 889	1 294 090	129 896	151 743	1 301 176	37 581	3 503 890	1 468 448	1	1	2	U.S.
22 516	23 125	12 368	774	1 222	15 176	1 518	102 033	38 647	(W)	(W)	16	AL
(D)	(D)	(D)	(D)	(D)	(D)	448	32 148	10 620	(D)	(D)	(D)	AK
48 277	(D)	27 660	7 556	(D)	(D)	139	14 988	7 216	(W)	(W)	(D)	AZ
15 845	(D)	13 188	428	*1 894	8 826	425	33 870	11 922	(W)	(W)	50	AR
153 566	62 691	88 670	6 563	3 833	28 698	1 021	119 554	39 126	2	3	14	CA
20 984	43 973	43 651	4 233	1 085	13 811	814	77 116	23 943	5	1	10	CO
90 928	(D)	15 650	4 449	4 204	29 296	682	60 953	18 418	7	2	1	CT
*3 339	2 552	(D)	(S)	(S)	(S)	(D)	(D)	(D)	44	45	(S)	DE
-	-	-	-	-	-	(D)	(D)	(D)	-	-	-	DC
33 219	40 481	34 336	2 026	2 221	22 547	1 728	130 498	71 987	(W)	(W)	(W)	FL
54 093	(D)	27 805	1 770	3 374	31 946	1 364	80 686	38 799	3	3	8	GA
-	-	-	-	-	-	-	-	-	-	-	-	HI
10 029	(D)	3 480	1 319	442	3 782	128	18 512	9 917	21	13	32	ID
111 479	93 069	57 009	6 703	9 154	75 482	2 187	220 598	111 177	6	3	4	IL
108 457	74 187	58 914	2 848	5 572	52 136	806	55 218	26 564	2	2	3	IN
42 378	52 563	21 718	1 247	1 983	29 785	932	77 471	41 725	4	3	5	IA
46 431	36 598	22 189	1 718	3 095	36 299	955	68 047	34 853	8	4	2	KS
29 498	41 186	18 755	1 362	4 857	37 126	973	93 995	37 069	6	3	7	KY
25 513	(D)	14 616	998	(D)	13 190	348	34 885	12 945	10	8	(D)	LA
(D)	(D)	(D)	(D)	(D)	(D)	297	24 233	10 043	(D)	(D)	(D)	ME
45 631	(D)	26 371	1 807	2 021	9 509	1 159	257 023	88 704	(W)	(W)	4	MD
29 143	(D)	14 384	4 029	1 322	13 853	335	31 785	18 647	6	9	20	MA
39 162	43 495	29 595	1 112	2 435	19 581	669	65 999	34 897	6	4	21	MI
77 980	(D)	23 046	3 659	5 262	66 297	788	90 558	(D)	2	9	5	MN
40 007	32 988	30 316	2 517	2 769	23 320	899	80 983	28 867	8	11	5	MS
52 901	(D)	25 308	1 811	3 767	42 043	623	51 874	17 626	8	6	11	MO
4 929	(D)	*755	*114	*78	*1 521	(D)	(D)	(D)	34	33	60	MT
10 205	(D)	5 168	173	(D)	6 245	263	17 377	7 901	16	15	(D)	NE
5 330	(D)	(D)	(D)	(D)	(D)	(S)	(S)	(S)	(D)	(D)	(D)	NV
8 174	(D)	1 705	(D)	(D)	6 498	156	17 894	6 801	14	13	(D)	NH
123 530	57 818	40 664	7 046	3 515	37 514	686	85 952	37 831	3	2	7	NJ
25 315	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	16	(D)	(D)	NM
176 688	78 823	73 837	12 029	8 063	65 155	2 580	241 154	128 911	1	1	3	NY
44 494	60 813	38 825	3 918	6 067	34 606	609	52 548	11 698	3	3	7	NC
9 765	7 722	3 747	(D)	(D)	(D)	133	9 646	4 344	(W)	(W)	(D)	ND
94 500	77 943	38 666	6 368	2 263	33 382	1 324	104 484	55 415	2	2	8	OH
34 913	(D)	6 198	831	765	10 931	463	34 022	18 394	5	6	13	OK
22 370	19 873	13 874	2 114	893	24 003	488	54 881	21 188	1	2	(W)	OR
232 990	132 397	124 381	9 989	18 551	135 480	2 065	203 934	93 988	1	1	7	PA
7 264	(D)	*3 823	(D)	-	-	(D)	(D)	(D)	18	13	-	RI
31 931	46 916	24 018	2 950	1 884	29 425	383	36 596	14 202	5	2	11	SC
(D)	(D)	(D)	(D)	(D)	(D)	254	11 298	5 115	(D)	(D)	(D)	SD
53 398	39 823	21 646	3 162	5 201	33 922	1 213	103 003	44 384	6	4	12	TN
194 806	117 073	90 567	9 556	15 969	92 931	2 291	171 185	73 574	2	1	3	TX
5 057	(D)	(D)	278	(D)	(D)	(S)	(S)	(S)	(D)	(W)	(D)	UT
16 245	9 744	5 052	849	1 103	7 135	188	12 774	6 185	7	4	13	VT
84 944	(D)	75 982	3 926	12 758	80 508	688	70 475	28 751	(W)	(W)	3	VA
49 229	36 383	41 862	1 540	4 098	15 465	1 137	111 758	53 326	25	12	29	WA
15 174	(D)	5 092	553	*232	7 864	132	12 739	6 646	(W)	(W)	48	WV
61 930	(D)	34 048	1 469	5 175	45 549	988	131 490	(D)	3	2	3	WI
(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	WY

**Table 2. Detailed Statistics for Establishments With Payroll: 1987 and Earlier Census Years**

[Thousand dollars. Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	1987	1982	1977	1972	Relative standard error of estimate (percent)			
					1987	1982	1977	1972
Number of establishments in business during year .....	1 159	999	979	1 294	3	2	2	6
Proprietors and working partners .....	161	162	256	466	15	9	7	13
All employees** .....	47 494	37 581	38 093	53 710	1	(W)	(W)	1
Construction workers:								
March .....	33 019	26 749	25 728	39 934	1	(W)	(W)	1
May .....	41 884	33 565	33 852	47 386	1	(W)	(W)	1
August .....	45 462	36 474	38 435	54 160	1	(W)	(W)	1
November .....	40 012	32 703	34 653	47 498	1	(W)	(W)	1
Average .....	40 092	32 473	33 187	47 366	1	(W)	(W)	1
Other employees:								
March .....	7 255	5 102	4 793	6 263	1	1	(W)	2
May .....	7 379	(NA)	(NA)	(NA)	1	(NA)	(NA)	(NA)
August .....	7 562	(NA)	(NA)	(NA)	1	(NA)	(NA)	(NA)
November .....	7 404	(NA)	(NA)	(NA)	1	(NA)	(NA)	(NA)
Average .....	7 402	(NA)	(NA)	(NA)	1	(NA)	(NA)	(NA)
Construction worker hours (thousands):								
January to March .....	14 931	11 648	(NA)	(NA)	1	(W)	(NA)	(NA)
April to June .....	20 026	15 387	(NA)	(NA)	1	(W)	(NA)	(NA)
July to September .....	22 332	17 159	(NA)	(NA)	2	(W)	(NA)	(NA)
October to December .....	18 919	14 565	(NA)	(NA)	1	(W)	(NA)	(NA)
Total hours worked .....	76 210	58 761	(NA)	(NA)	1	(W)	(NA)	(NA)
Payroll, all employees .....	1 191 764	815 514	535 877	589 670	1	(W)	(W)	1
Payroll, construction workers .....	909 919	664 873	438 750	498 749	(W)	(W)	(W)	1
Payroll, other employees .....	281 844	150 641	97 128	90 921	1	(W)	(W)	1
First quarter payroll, all employees .....	227 384	157 316	96 496	(NA)	1	(W)	(W)	(NA)
Employer costs for fringe benefits, all employees .....	341 151	154 749	107 594	(NA)	1	(W)	(W)	(NA)
Legally required expenditures .....	225 313	115 304	64 721	(NA)	1	(W)	(W)	(NA)
Voluntary expenditures .....	115 838	39 445	42 873	(NA)	1	1	(W)	(NA)
Dollar value of business done .....	5 579 414	3 549 200	2 270 818	2 282 232	1	(W)	(W)	1
Value of construction work <sup>1</sup> .....	5 480 936	3 503 890	2 247 284	2 233 369	1	(W)	(W)	1
Value of construction work subcontracted in from others .....	745 097	377 277	300 775	284 100	3	1	1	2
Land receipts <sup>2</sup> .....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Other business receipts .....	98 477	45 310	23 534	48 863	1	(W)	1	2
Net value of construction work† .....	4 186 846	2 812 186	1 827 239	1 780 057	1	(W)	(W)	1
Value added†† .....	2 430 434	1 468 448	962 687	970 028	1	(W)	(W)	1
Selected costs .....	3 148 979	2 080 752	1 308 131	1 312 204	1	(W)	(W)	1
Materials, components, and supplies <sup>3</sup> .....	1 767 054	1 319 225	846 600	858 892	1	(W)	(W)	1
Construction work subcontracted to others .....	1 294 090	691 704	420 045	453 312	1	(W)	(W)	1
Selected power, fuels, and lubricants .....	87 835	69 822	41 487	(NA)	1	(W)	(W)	(NA)
Electricity .....	12 623	8 964	3 281	(NA)	1	(W)	(W)	(NA)
Natural gas .....	2 711	2 543	5 929	(NA)	1	1	(W)	(NA)
Gasoline and diesel fuel .....	65 599	52 429	28 249	(NA)	1	1	(W)	(NA)
On highway use .....	31 998	(NA)	(NA)	(NA)	1	(NA)	(NA)	(NA)
Off highway use .....	33 600	(NA)	(NA)	(NA)	1	(NA)	(NA)	(NA)
Other, including lubricating oils and greases .....	6 901	5 885	4 029	(NA)	1	1	1	(NA)
Rental cost for machinery, equipment, and buildings .....	129 896	79 216	62 763	(NA)	2	1	1	(NA)
For machinery and equipment .....	118 516	71 952	59 428	57 868	2	1	1	2
For buildings .....	11 380	7 263	3 336	(NA)	2	1	(W)	(NA)
Selected purchased services .....	121 319	80 717	50 732	(NA)	1	1	(W)	(NA)
Communication services .....	12 750	9 678	5 132	(NA)	1	1	1	(NA)
Repairs to buildings and other structures .....	3 950	2 381	2 168	(NA)	1	2	1	(NA)
Repairs to machinery and equipment .....	104 618	68 657	43 432	(NA)	1	(W)	(W)	(NA)
Ownership of construction projects:								
Value of construction work <sup>1</sup> .....	5 480 936	3 503 890	2 247 284	2 233 369	1	(W)	(W)	1
Government owned .....	4 803 659	3 011 288	1 904 579	1 915 216	1	(W)	(W)	1
Federal .....	1 100 377	(NA)	(NA)	(NA)	1	(NA)	(NA)	(NA)
State and local .....	3 703 281	(NA)	(NA)	(NA)	1	(NA)	(NA)	(NA)
Privately owned .....	677 277	492 601	342 705	318 153	2	1	(W)	2

<sup>1</sup>In earlier censuses, construction receipts only were collected. In 1987, the value of construction work was collected to better measure actual construction activity done during the year.

<sup>2</sup>Data were collected separately for establishments classified in SIC 1531, Operative Builders, and SIC 6552, Subdividers and Developers. Except Cemeteries. For all other industries, data are included in other business receipts.

<sup>3</sup>For 1972, includes data for power, fuels, and lubricants.



Table 3. **Assets, Capital Expenditures, and Depreciation for Establishments With Payroll:  
1987 and 1982**

[Thousand dollars. Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item			Relative standard error of estimate (percent)	
			1987	1982
<b>BUILDINGS AND OTHER STRUCTURES, MACHINERY, AND EQUIPMENT</b>				
Beginning-of-year gross book value of depreciable assets -----	1 210 909	943 836	1	(W)
Capital expenditures, other than land -----	151 743	81 614	2	1
New -----	107 836	58 298	2	1
Used -----	43 907	23 316	4	3
Retirements and disposition of depreciable assets -----	61 476	44 691	5	(W)
End-of-year gross book value of depreciable assets -----	1 301 176	980 759	1	(W)
Depreciation charges during year -----	128 527	108 634	1	1
<b>Buildings and other Structures, Additions, and Related Facilities</b>				
Beginning-of-year gross book value of depreciable assets -----	102 438	59 453	4	1
Capital expenditures, other than land -----	12 035	4 442	6	1
New buildings and other structures -----	9 174	3 140	7	2
Used buildings and other structures -----	2 861	1 301	12	(W)
Retirements and disposition of depreciable assets -----	642	2 058	16	(W)
End-of-year gross book value of depreciable assets -----	113 831	61 837	4	1
Depreciation charges during year -----	9 216	6 981	6	(W)
<b>Machinery and Equipment</b>				
Beginning-of-year gross book value of depreciable assets -----	1 108 471	884 383	1	1
Capital expenditures, other than land -----	139 707	77 172	2	1
New machinery and equipment, including automobiles and trucks -----	98 661	55 158	1	1
New automobiles and trucks, intended primarily for highway use -----	25 293	11 057	2	2
Used machinery and equipment, including automobiles and trucks -----	41 045	22 014	4	3
Retirements and disposition of depreciable assets -----	60 834	42 633	5	(W)
End-of-year gross book value of depreciable assets -----	1 187 344	918 922	1	(W)
Depreciation charges during year -----	119 311	101 653	1	1

**Table 4. Value of Inventories for Establishments With Payroll: 1987 and 1986**

[Thousand dollars. Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Establishments with payroll	Relative standard error of estimate (percent)
All establishments:		
Number .....	1 159	3
Value of construction work .....	5 480 936	1
Establishments with inventories:		
Number .....	365	5
Value of construction work .....	2 208 914	1
Inventories <sup>1</sup> :		
End of 1987, materials and supplies .....	31 388	3
End of 1986, materials and supplies .....	35 577	4
Establishments with no inventories:		
Number .....	662	6
Value of construction work .....	2 738 283	2
Establishments not reporting:		
Number .....	132	11
Value of construction work .....	533 739	2

<sup>1</sup>Inventories at cost or market prior to any adjustment to correct to LIFO values.

**Table 5. Selected Statistics for Establishments With Payroll by Employment Size Class: 1987 and 1982**

[Thousand dollars. Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Selected statistics	Total	Establishments with an average of—								1,000 employees or more
		1 to 4 employees	5 to 9 employees	10 to 19 employees	20 to 49 employees	50 to 99 employees	100 to 249 employees	250 to 499 employees	500 to 999 employees	
<b>1987</b>										
Number of establishments .....	1 159	200	202	225	285	139	79	18	9	-
All employees** .....	47 494	490	1 305	3 152	9 105	9 768	11 615	6 129	5 926	-
Payroll, all employees .....	1 191 764	11 943	26 837	70 467	217 509	265 101	306 868	162 243	130 794	-
Construction worker hours (thousands) .....	76 210	632	1 605	4 192	15 168	15 976	18 669	10 160	9 806	-
Dollar value of business done .....	5 579 414	80 690	108 908	314 600	1 021 522	1 214 708	1 499 291	1 339 693	(D)	-
Value of construction work <sup>1</sup> .....	5 480 936	80 216	105 440	311 214	1 012 190	1 195 049	1 467 884	662 080	646 862	-
Net value of construction work† .....	4 186 846	68 919	91 412	262 270	779 579	928 869	1 080 074	488 879	486 843	-
Value added†† .....	2 430 434	40 075	60 692	162 045	464 736	536 510	598 293	287 386	280 696	-
Cost of materials, components, supplies, and fuels .....	1 854 889	29 317	34 187	103 611	324 175	412 018	513 188	438 391	(D)	-
Cost of construction work subcontracted to others .....	1 294 090	11 297	14 027	48 944	232 610	266 180	387 810	173 201	160 019	-
Rental cost for machinery, equipment, and buildings .....	129 896	2 873	3 522	7 398	28 701	32 266	33 429	13 141	8 564	-
Capital expenditures, other than land .....	151 743	911	3 314	7 700	32 452	31 236	40 451	22 511	13 167	-
End-of-year gross book value of depreciable assets .....	1 301 176	12 067	30 523	67 060	211 491	301 980	371 383	185 180	121 490	-
<b>1982</b>										
All employees** .....	37 581	412	1 287	2 302	7 417	8 864	9 568	4 136	3 595	-
Total construction receipts <sup>1</sup> .....	3 503 890	42 926	109 302	176 827	598 910	815 236	923 130	563 162	274 397	-
Value added†† .....	1 468 448	17 011	56 050	84 771	269 247	348 760	391 720	215 119	85 769	-
<b>1987 RELATIVE STANDARD ERROR OF ESTIMATE (PERCENT)</b>										
All employees** .....	1	15	10	6	3	(W)	(W)	(W)	(W)	-
Net value of construction work† .....	1	19	9	5	2	(W)	(W)	(W)	(W)	-
Capital expenditures, other than land .....	2	26	40	13	5	1	3	(W)	(W)	-

Note: Underscored data fields include data from adjoining columns which have been withheld to avoid disclosing data for individual companies.

<sup>1</sup>In earlier censuses, construction receipts only were collected. In 1987, the value of construction work was collected to better measure actual construction activity done during the year.



**Table 6. Selected Statistics by Size Class of the Dollar Value of Business Done for Establishments With Payroll: 1987 and 1982**

[Thousand dollars. Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Selected statistics	Total	Establishments with dollar value of business done									
		Less than \$25,000	\$25,000 to \$49,999	\$50,000 to \$99,999	\$100,000 to \$249,999	\$250,000 to \$499,999	\$500,000 to \$999,999	\$1,000,000 to \$2,499,999	\$2,500,000 to \$4,999,999	\$5,000,000 to \$9,999,999	\$10,000,000 or more
<b>1987</b>											
Number of establishments -----	1 159	(S)	(S)	40	86	175	163	236	159	136	141
All employees** -----	47 494	(S)	(S)	*140	393	977	1 708	4 861	5 707	8 354	25 337
Payroll, all employees -----	1 191 764	(S)	(S)	*888	5 161	18 514	30 336	99 279	143 049	214 708	679 688
Construction worker hours (thousands) -----	76 210	(S)	(S)	*109	419	1 156	2 815	7 063	9 195	14 135	41 300
Dollar value of business done -----	5 579 414	(S)	(S)	3 087	15 293	59 435	121 532	397 281	580 166	957 983	3 444 034
Value of construction work <sup>1</sup> -----	5 480 936	(S)	(S)	3 081	14 694	58 723	120 023	392 836	571 431	942 730	3 376 825
Net value of construction work† -----	4 186 846	(S)	(S)	3 013	13 388	54 670	103 853	326 326	460 617	734 104	2 490 500
Value added†† -----	2 430 434	(S)	(S)	2 138	8 828	35 693	68 266	198 640	281 734	423 046	1 411 842
Cost of materials, components, supplies, and fuels -----	1 854 889	(S)	(S)	881	5 160	19 688	37 095	132 130	187 618	326 310	1 145 867
Cost of construction work subcontracted to others -----	1 294 090	(S)	(S)	68	1 305	4 053	16 169	66 510	110 813	208 625	886 325
Rental cost for machinery, equipment, and buildings -----	129 896	(S)	(S)	(S)	412	2 286	5 409	9 346	18 682	25 624	68 007
Capital expenditures, other than land -----	151 743	(S)	(S)	*245	326	1 122	2 660	12 648	17 782	22 630	94 321
End-of-year gross book value of depreciable assets -----	1 301 176	(S)	(S)	631	6 649	20 073	29 651	104 109	148 273	230 250	761 464
<b>1982</b>											
All employees** -----	37 581	22	49	58	363	870	1 974	5 084	5 897	6 808	16 455
Total construction receipts <sup>1</sup> -----	3 503 890	316	967	2 553	17 658	47 772	117 761	338 290	452 381	619 264	1 906 927
Value added†† -----	1 468 448	158	461	1 253	9 167	23 956	57 729	156 525	215 638	252 312	751 246
<b>1987 RELATIVE STANDARD ERROR OF ESTIMATE (PERCENT)</b>											
All employees** -----	1	(S)	(S)	57	25	12	12	5	1	1	(W)
Net value of construction work† -----	1	(S)	(S)	35	19	13	10	5	1	2	(W)
Capital expenditures, other than land -----	2	(S)	(S)	66	31	35	28	12	7	3	1

Note: Underscored data fields include data from adjoining columns which have been withheld to avoid disclosing data for individual companies.

<sup>1</sup>In earlier censuses construction receipts only were collected. In 1987, the value of construction work was collected to better measure actual construction activity done during the year.

**Table 7. Value of Construction Work for Establishments With Payroll by Type of Construction: 1987 and 1982**

[Thousand dollars. Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Type of construction	Value of construction work <sup>1</sup>				Relative standard error of estimate (percent) for column—			
	Total	New construction	Additions, alterations, or reconstruction <sup>2</sup>	Maintenance and repair				
	A	B	C	D	A	B	C	D
<b>1987</b>								
Value of construction work <sup>1</sup> .....	5 480 936	3 948 853	1 105 166	371 889	1	1	1	1
<b>Building construction</b> .....	133 195	81 232	45 106	6 856	3	4	3	2
Other commercial buildings such as stores, restaurants, and automobile service stations .....	40 551	26 653	(D)	(D)	1	2	(D)	(D)
Industrial buildings and warehouses .....	42 774	27 430	(D)	(D)	1	1	(D)	(D)
Other buildings .....	49 870	27 149	20 059	2 661	2	(W)	3	(W)
<b>Nonbuilding construction</b> .....	5 292 714	3 867 621	1 060 059	365 033	1	1	1	2
Highways, streets, and related facilities .....	387 161	267 621	83 705	35 834	1	(W)	3	1
Bridges, tunnels, and elevated highways .....	4 476 501	3 259 359	916 856	300 284	1	1	1	2
Tunnels .....	505 987	403 843	77 737	24 407	1	1	1	3
Bridges and elevated highways .....	3 970 513	2 855 516	839 119	275 877	1	1	1	2
Marine construction .....	29 291	20 764	(D)	(D)	1	2	(D)	(D)
Conservation and development construction .....	25 624	23 160	2 233	231	1	1	(W)	39
Sewers, water mains, and related facilities .....	93 450	72 816	17 436	3 196	2	2	4	3
Sewers, sewer lines, and related facilities .....	52 406	40 814	9 586	2 004	2	2	2	2
Water mains and related facilities .....	41 044	32 001	7 850	1 191	4	4	7	6
Heavy industrial facilities .....	49 234	43 522	(D)	(D)	(W)	(W)	(D)	(D)
Sewage treatment and water treatment plants .....	113 394	99 144	10 747	3 502	1	1	(W)	10
Sewage treatment plants .....	71 097	(D)	(D)	2 251	1	(D)	(D)	10
Water treatment plants .....	42 296	(D)	(D)	1 251	(W)	(D)	(D)	9
Other nonbuilding construction .....	118 059	81 235	19 024	17 806	9	13	4	12
<b>Construction work, n.s.k.</b> .....	55 027	(NA)	(NA)	(NA)	10	(NA)	(NA)	(NA)
<b>1982</b>								
Value of construction work <sup>1</sup> .....	3 503 890	3 033 161	(NA)	470 729	(W)	(W)	(NA)	1
<b>Building construction</b> .....	63 183	60 674	(NA)	2 508	1	1	(NA)	(W)
Office buildings .....	10 474	10 249	(NA)	225	(W)	(W)	(NA)	(W)
Industrial buildings and warehouses .....	19 224	17 776	(NA)	1 448	(W)	(W)	(NA)	(W)
Other buildings .....	33 485	32 649	(NA)	835	3	3	(NA)	(W)
<b>Nonbuilding construction</b> .....	3 346 329	2 887 841	(NA)	458 488	(W)	(W)	(NA)	1
Highways, streets, and related facilities .....	204 327	158 647	(NA)	45 680	1	1	(NA)	1
Bridges, tunnels, and elevated highways .....	2 816 805	2 454 104	(NA)	362 700	(W)	1	(NA)	1
Tunnels .....	583 760	571 146	(NA)	12 613	1	1	(NA)	8
Bridges and elevated highways .....	2 233 045	1 882 958	(NA)	350 087	(W)	1	(NA)	1
Dam and reservoir construction .....	34 568	25 657	(NA)	8 910	(W)	(W)	(NA)	(W)
Marine construction .....	72 271	58 916	(NA)	13 354	1	1	(NA)	1
Harbor and port facilities .....	53 509	46 940	(NA)	6 569	1	(W)	(NA)	8
Conservation and development construction .....	17 363	14 943	(NA)	2 420	1	1	(NA)	(W)
Sewers, water mains, and related facilities .....	76 858	73 016	(NA)	3 841	1	1	(NA)	(W)
Sewers, sewer lines, and related facilities .....	52 577	49 240	(NA)	3 336	(W)	(W)	(NA)	(W)
Water mains and related facilities .....	24 281	23 776	(NA)	505	2	2	(NA)	(W)
Sewage treatment and water treatment plants .....	25 311	20 955	(NA)	4 356	(W)	(W)	(NA)	(W)
Sewage treatment plants .....	17 840	14 425	(NA)	3 414	(W)	(W)	(NA)	(W)
Water treatment plants .....	7 471	6 529	(NA)	942	(W)	(W)	(NA)	(W)
Other nonbuilding construction .....	45 317	34 663	(NA)	10 658	6	7	(NA)	8
<b>Construction work, n.s.k.</b> .....	94 377	84 645	(NA)	9 732	(W)	(W)	(NA)	1

<sup>1</sup>In earlier censuses, construction receipts only were collected. In 1987, the value of construction work was collected to better measure actual construction activity done during the year.

<sup>2</sup>In 1982, data for additions, alterations, or reconstruction were collected separately for SIC 1521, 1522, 1531, 1541, and 1542. For all other industries, data are included with "New construction."



**Table 8. Selected Statistics for Establishments With Payroll by Specialization in Types of Construction: 1987**

[Thousand dollars. Detail may not add to total due to rounding. This table presents selected statistics for establishments according to degree of specialization in major types of construction work. If number of establishments or value of construction work for a given type of specialization are relatively insignificant, data may not be shown. In addition, data are not shown in this table where distribution of the value of construction work by type of construction was not provided in table 7. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Number of establishments	All employees**	Payroll, all employees	Value of construction work		Net value of construction work†	Value added††	Cost of construction work sub-contracted to others	Relative standard error of estimate (percent) for column—		
				For all types	For specialized type				B	D	H
	A	B	C	D	E	F	G	H			
<b>All establishments</b> .....	1 159	47 494	1 191 764	5 480 936	4 203 490	4 186 846	2 430 434	1 294 090	1	1	1
Establishments not specializing by type .....	71	4 866	120 653	568 354	(NA)	430 454	270 373	137 900	1	1	1
Establishments specializing 51 percent or more .....	1 088	42 627	1 071 110	4 912 582	4 203 490	3 756 392	2 160 061	1 156 190	1	1	1
<b>TUNNELS</b>											
<b>All establishments specializing in type</b> .....	115	4 076	116 894	515 865	459 359	423 870	288 137	91 994	3	1	(W)
Establishments with —											
100 percent specialization .....	95	2 833	82 954	349 608	349 608	281 920	190 515	67 688	3	1	(W)
90 to 99 percent specialization .....	9	(S)	861	1 701	1 579	*1 701	1 455	—	(S)	40	—
80 to 89 percent specialization .....	4	193	5 754	16 873	13 644	(D)	9 788	(D)	(W)	(W)	(D)
70 to 79 percent specialization .....	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
60 to 69 percent specialization .....	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
51 to 59 percent specialization .....	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
<b>BRIDGES AND ELEVATED HIGHWAYS</b>											
<b>All establishments specializing in type</b> .....	915	38 266	948 799	4 376 727	3 724 804	3 315 100	1 860 924	1 061 627	1	1	1
Establishments with —											
100 percent specialization .....	554	16 717	408 694	1 842 985	1 842 985	1 430 209	806 845	412 775	2	1	1
90 to 99 percent specialization .....	88	3 657	88 543	396 585	367 860	302 575	186 500	94 010	2	2	1
80 to 89 percent specialization .....	62	3 851	110 204	487 859	409 596	352 733	201 273	135 125	1	1	(W)
70 to 79 percent specialization .....	93	6 710	166 819	872 135	637 024	640 761	356 786	231 373	2	1	1
60 to 69 percent specialization .....	66	4 876	107 079	494 223	314 242	373 218	194 376	121 004	1	3	2
51 to 59 percent specialization .....	50	2 452	67 459	282 938	153 094	215 601	115 141	67 337	4	2	1

**Table 9. Quarterly Construction Worker Hours and Employment for Establishments With**

[Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Location of establishment	Number of establishments	Average number of construction workers	Construction worker hours (thousands)	January to March		April to June	
				Construction workers <sup>1</sup>	Hours worked (thousands)	Construction workers <sup>1</sup>	Hours worked (thousands)
	A	B	C	D	E	F	G
<b>United States .....</b>	<b>1 159</b>	<b>40 092</b>	<b>76 210</b>	<b>33 019</b>	<b>14 931</b>	<b>41 884</b>	<b>20 026</b>
Alabama .....	13	461	943	478	207	431	226
Alaska .....	2	(D)	(D)	(D)	(D)	(D)	(D)
Arizona .....	10	971	1 769	1 112	489	1 056	482
Arkansas .....	13	306	318	325	76	310	73
California .....	53	1 642	2 930	1 560	658	1 651	721
Colorado .....	18	602	1 130	595	246	633	316
Connecticut .....	24	884	1 883	568	297	909	497
Delaware .....	*3	*32	(S)	*25	(S)	*32	(S)
District of Columbia .....	-	-	-	-	-	-	-
Florida .....	19	708	1 267	640	282	684	303
Georgia .....	21	936	2 107	783	474	951	577
Hawaii .....	-	-	-	-	-	-	-
Idaho .....	8	123	236	65	25	110	55
Illinois .....	57	2 054	3 673	1 641	696	2 055	911
Indiana .....	47	1 559	2 873	1 134	520	1 568	738
Iowa .....	36	876	1 811	670	267	934	553
Kansas .....	47	902	1 539	659	266	998	432
Kentucky .....	32	700	1 405	596	282	685	355
Louisiana .....	16	614	973	570	206	608	237
Maine .....	3	(D)	(D)	(D)	(D)	(D)	(D)
Maryland .....	12	702	1 426	660	322	709	372
Massachusetts .....	19	433	815	256	102	471	203
Michigan .....	33	562	1 066	403	178	647	316
Minnesota .....	17	1 159	2 243	972	437	1 188	628
Mississippi .....	20	876	1 764	809	410	879	446
Missouri .....	58	1 235	1 944	974	378	1 396	517
Montana .....	*13	98	*121	*62	*15	109	*29
Nebraska .....	29	241	461	193	91	311	136
Nevada .....	10	(D)	96	75	35	(D)	(D)
New Hampshire .....	5	106	182	70	34	108	47
New Jersey .....	28	1 281	2 448	1 073	495	1 403	686
New Mexico .....	*6	425	1 018	(D)	(D)	428	256
New York .....	58	3 147	5 292	2 426	966	3 477	1 451
North Carolina .....	26	1 465	2 924	1 350	634	1 508	773
North Dakota .....	5	184	378	57	(D)	217	105
Ohio .....	44	1 330	2 330	950	394	1 527	634
Oklahoma .....	31	572	963	539	205	598	251
Oregon .....	17	305	469	227	100	275	108
Pennsylvania .....	65	2 855	5 237	1 969	812	3 099	1 465
Rhode Island .....	*6	64	(D)	66	(D)	66	(D)
South Carolina .....	15	662	1 536	574	324	629	378
South Dakota .....	2	(D)	(D)	(D)	(D)	(D)	(D)
Tennessee .....	43	1 081	2 480	941	478	1 060	638
Texas .....	64	3 478	7 482	3 319	1 672	3 440	1 862
Utah .....	4	(D)	(D)	75	23	(D)	39
Vermont .....	*11	268	428	167	67	333	139
Virginia .....	30	2 037	4 122	1 755	840	2 088	1 055
Washington .....	27	680	1 242	494	*271	691	259
West Virginia .....	8	248	498	183	81	255	125
Wisconsin .....	16	786	1 591	453	225	898	436
Wyoming .....	2	(D)	(D)	(D)	(D)	(D)	(D)

<sup>1</sup>Construction workers during pay periods including 12th of March, May, August, and November.



Payroll by State: 1987

July to September		October to December		Relative standard error of estimate (percent) for column—										Location of establishment
Construction workers¹	Hours worked (thousands)	Construction workers¹	Hours worked (thousands)											
H	I	J	K	B	C	D	E	F	G	H	I	J	K	
45 462	22 332	40 012	18 919	1	1	1	1	1	1	1	2	1	1	U.S.
455	242	483	266	(W)	5	(W)	6	(W)	5	(W)	6	(W)	6	AL
(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AK
935	437	781	359	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	(W)	AZ
328	91	264	76	(W)	20	(W)	9	(W)	12	(W)	33	(W)	32	AR
1 781	823	1 575	726	2	4	2	4	2	5	3	5	2	5	CA
585	284	597	282	5	9	6	10	6	10	6	10	2	6	CO
999	563	1 062	525	7	12	3	7	6	13	8	14	9	13	CT
*34	(S)	36	(S)	48	(S)	58	(S)	45	(S)	51	(S)	40	(S)	DE
-	-	-	-	-	-	-	-	-	-	-	-	-	-	DC
730	344	781	336	(W)	5	(W)	3	(W)	6	(W)	5	(W)	4	FL
1 043	539	967	517	3	7	4	7	3	7	2	8	3	8	GA
-	-	-	-	-	-	-	-	-	-	-	-	-	-	HI
188	85	132	69	19	24	(W)	13	29	34	29	31	6	17	ID
2 398	1 123	2 120	941	6	9	5	8	7	10	7	10	6	9	IL
1 906	894	1 627	719	2	4	2	4	3	4	2	4	2	3	IN
1 037	489	865	501	4	3	5	3	4	4	4	4	4	2	IA
1 062	474	890	366	7	5	6	5	7	4	9	5	6	5	KS
792	408	726	358	5	6	3	5	8	5	4	6	6	7	KY
664	274	612	254	10	15	11	12	10	14	9	15	12	20	LA
(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	ME
731	380	708	351	(W)	3	(W)	3	(W)	3	(W)	3	(W)	4	MD
560	283	447	226	6	8	5	9	5	8	6	7	8	11	MA
661	331	535	238	5	8	3	8	6	9	7	9	5	6	MI
1 438	690	1 038	486	2	4	1	2	2	5	2	5	2	4	MN
861	443	957	463	9	8	9	9	8	8	7	7	10	9	MS
1 355	566	1 216	481	8	8	9	10	8	8	8	9	7	8	MO
133	*54	*88	*21	36	47	41	64	27	42	37	44	43	51	MT
277	145	185	88	14	19	13	20	13	20	17	19	15	19	NE
(D)	(D)	(D)	(D)	(D)	12	20	32	(D)	(D)	(D)	(D)	(D)	(D)	NV
121	54	126	45	13	(W)	4	(W)	13	(W)	17	(W)	14	(W)	NH
1 422	699	1 227	567	3	3	2	3	3	4	5	4	4	3	NJ
476	287	(D)	(D)	17	12	(D)	(D)	21	16	16	12	(D)	(D)	NM
3 493	1 537	3 195	1 337	(W)	1	(W)	1	(W)	1	(W)	1	1	1	NY
1 541	791	1 462	725	3	6	3	6	3	6	3	5	4	6	NC
342	182	123	(D)	(W)	(W)	(W)	(D)	(W)	(W)	(W)	(W)	(W)	(D)	ND
1 566	754	1 277	546	3	4	1	3	3	4	4	6	2	4	OH
618	273	533	232	4	5	3	5	7	5	4	6	3	6	OK
431	153	289	107	1	3	3	4	1	1	1	4	(W)	2	OR
3 468	1 676	2 882	1 284	1	4	1	3	1	4	1	5	1	4	PA
60	(D)	66	(D)	16	(D)	23	(D)	17	(D)	13	(D)	11	(D)	RI
738	441	707	391	4	6	5	6	4	6	4	6	5	5	SC
(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	SD
1 144	678	1 181	685	6	10	4	7	5	9	6	10	9	13	TN
3 631	2 042	3 527	1 904	1	4	2	4	1	4	1	4	1	4	TX
(D)	(D)	(D)	(D)	(D)	(D)	(W)	(W)	(D)	(W)	(D)	(D)	(D)	(D)	UT
350	147	222	73	8	9	3	5	9	10	13	14	2	1	VT
2 290	1 158	2 015	1 067	(W)	2	(W)	2	(W)	2	(W)	2	(W)	2	VA
993	*482	543	229	26	32	26	44	30	21	38	46	2	6	WA
293	176	264	115	(W)	8	(W)	8	(W)	9	(W)	7	(W)	10	WV
995	543	797	385	3	3	2	2	5	3	4	4	2	1	WI
(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	WY

**Table 10. Value of Construction Work for Establishments With Payroll by Location of Construction Work: 1987 and 1982**

[Thousand dollars. Detail may not add to total due to rounding. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Location of construction work	1987					1982 construction receipts for work done in this State¹	Percent change 1987 (col A) to 1982 (col F)	Relative standard error of estimate (percent) for column—		
	Value of construction work done in this State¹	Construction work done by establishments located in this State		Construction work done by establishments not located in this State						
		Number	Value of construction work	Number	Value of construction work					
A	B	C	D	E	F	G	A	C	E	
United States -----	5 480 936	1 123	4 352 505	471	1 128 430	3 503 890	56.4	1	1	(W)
Alabama -----	73 421	13	37 226	13	36 195	99 385	-26.1	1	(W)	1
Alaska -----	(D)	2	(D)	2	(D)	32 148	(D)	(D)	(D)	(D)
Arizona -----	143 031	10	130 042	7	12 989	25 183	468.0	(W)	(W)	(W)
Arkansas -----	46 461	12	26 105	17	20 356	59 845	-22.4	(W)	(W)	1
California -----	266 677	53	234 898	8	31 779	91 918	190.1	2	3	(W)
Colorado -----	88 118	18	(D)	1	(D)	63 187	39.5	1	(D)	(D)
Connecticut -----	104 748	22	(D)	7	(D)	29 893	250.4	3	(D)	(D)
Delaware -----	14 527	*3	(D)	2	(D)	1 864	679.3	21	(D)	(D)
District of Columbia -----	(D)	-	-	3	(D)	7 419	(D)	(D)	-	(D)
Florida -----	170 112	19	106 267	18	63 845	190 754	-10.8	(W)	(W)	(W)
Georgia -----	161 513	20	119 012	27	42 501	71 734	125.2	2	3	1
Hawaii -----	(D)	-	-	1	(D)	(D)	(D)	(D)	-	(D)
Idaho -----	18 956	8	(D)	2	(D)	20 493	-7.5	10	(D)	(D)
Illinois -----	245 685	54	213 972	16	31 712	226 770	8.3	2	3	1
Indiana -----	124 709	45	121 841	11	2 868	67 616	84.4	3	3	7
Iowa -----	62 723	36	57 170	4	5 553	57 783	8.5	5	5	(W)
Kansas -----	120 689	47	83 877	10	36 812	68 505	76.2	3	4	(W)
Kentucky -----	70 975	32	57 807	15	13 168	62 122	14.3	3	4	2
Louisiana -----	103 820	14	55 028	16	48 791	104 345	-5	5	9	(W)
Maine -----	(D)	3	(D)	2	(D)	23 185	(D)	(D)	(D)	(D)
Maryland -----	137 609	11	96 508	13	41 101	310 214	-55.6	(W)	(W)	(W)
Massachusetts -----	44 712	18	40 748	7	3 964	35 264	26.8	10	11	(W)
Michigan -----	114 384	33	(D)	3	(D)	63 278	80.8	3	(D)	(D)
Minnesota -----	135 847	15	85 732	11	50 114	81 271	67.2	10	16	2
Mississippi -----	84 055	14	64 309	12	19 746	86 527	-2.9	10	13	(W)
Missouri -----	125 066	56	104 444	12	20 622	39 391	217.5	6	7	(W)
Montana -----	8 107	*13	(D)	2	(D)	37 554	-78.4	31	(D)	(D)
Nebraska -----	20 685	29	14 540	6	6 144	20 867	-9	14	20	(W)
Nevada -----	12 164	*10	(D)	2	(D)	7 208	68.8	9	(D)	(D)
New Hampshire -----	29 644	5	14 074	6	15 569	24 319	21.9	7	14	(W)
New Jersey -----	253 904	25	(D)	10	(D)	47 586	433.6	2	(D)	(D)
New Mexico -----	13 310	*5	12 338	*5	*971	11 758	13.2	19	21	50
New York -----	371 631	56	277 289	21	94 341	287 814	29.1	1	1	(W)
North Carolina -----	163 455	26	136 497	17	26 957	63 689	156.6	3	3	(W)
North Dakota -----	14 399	5	14 399	-	-	10 365	38.9	(W)	(W)	-
Ohio -----	179 728	44	165 997	11	13 731	41 328	334.9	2	2	(W)
Oklahoma -----	95 879	29	58 420	9	37 459	37 979	152.5	4	7	(W)
Oregon -----	67 148	17	37 070	5	30 078	69 978	-4.0	1	1	(W)
Pennsylvania -----	387 042	65	361 116	14	25 925	182 729	111.8	1	1	(W)
Rhode Island -----	24 864	*6	(D)	2	(D)	(D)	(D)	13	(D)	(D)
South Carolina -----	113 544	15	89 942	22	23 602	44 715	153.9	2	2	3
South Dakota -----	11 049	2	(D)	5	(D)	13 097	-15.6	(W)	(D)	(D)
Tennessee -----	108 016	43	99 134	16	8 881	76 053	42.0	4	4	4
Texas -----	469 842	62	353 523	15	116 318	227 713	106.3	1	1	(W)
Utah -----	(D)	3	(D)	-	-	53 312	(D)	(D)	(D)	-
Vermont -----	23 098	*11	(D)	1	(D)	7 395	212.3	7	(D)	(D)
Virginia -----	282 506	28	256 577	18	25 929	74 365	279.9	(W)	(W)	5
Washington -----	134 849	27	109 149	14	25 699	106 524	26.6	12	14	5
West Virginia -----	45 756	8	31 174	13	14 581	35 922	27.4	(W)	(W)	(W)
Wisconsin -----	124 934	16	93 437	9	31 496	56 319	121.8	1	2	1
Wyoming -----	(D)	2	(D)	3	439	27 270	(D)	(D)	(D)	(W)

<sup>1</sup>In earlier censuses, construction receipts only were collected. In 1987, the value of construction work was collected to better measure actual construction activity done during the year.



**Table 11. Dollar Value of Business Done for Establishments With Payroll by Kind of Business Activity: 1987 and 1982**

[Thousand dollars. Detail may not add to total due to rounding. Based on their primary business activity or combination of activities, establishments were classified into this specific industry. These establishments, however, may also be engaged in other kinds of business activities. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Primary and other kinds of business activities	Dollar value of business done <sup>1</sup>		Relative standard error of estimate (percent)	
	1987	1982	1987	1982
<b>All kinds of business.....</b>	<b>5 579 414</b>	<b>3 549 200</b>	<b>1</b>	<b>(W)</b>
General building contractor .....	130 323	103 653	4	(W)
Highway and street contractor.....	309 420	197 429	1	(W)
Paving contractor .....	67 994	(S)	(W)	(S)
Heavy construction.....	4 906 776	3 058 759	(W)	(W)
Heavy construction contractor.....	4 834 262	(NA)	1	(NA)
Excavating and earthmoving contractor .....	72 514	(NA)	4	(NA)
Concrete construction .....	13 784	14 444	3	10
Other construction activities.....	44 182	(S)	12	(S)
Manufacturing .....	29 693	(S)	(W)	(S)
Rental of construction machinery or equipment to others.....	23 039	15 316	(W)	1
Other activities .....	44 193	159 599	1	(W)
Kind of business activity, n.s.k. ....	10 009	(S)	(W)	(S)

<sup>1</sup>In earlier censuses, construction receipts only were collected. In 1987, the value of construction work was collected to better measure actual construction activity done during the year.

**Table 12. Selected Industry Ratios for Establishments With Payroll: 1987 and 1982**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Selected statistics	1987	1982	Relative standard error of estimate (percent) for 1987
<b>AVERAGE PER ESTABLISHMENT</b>			
Number of employees**	41.0	37.6	3
Number of construction workers	34.6	32.5	3
Number of all other employees	6.4	(NA)	3
Payroll, all employees	1 028.3	816.3	3
Payroll, construction workers	do	665.5	3
Payroll, other employees	do	150.8	3
Dollar value of business done	do	do	do
Value of construction work <sup>1</sup>	4 814.0	3 552.8	3
Cost of materials, components, supplies, and fuels	4 729.0	3 507.4	3
Construction work subcontracted to others	1 600.4	1 390.4	3
Rental cost for machinery, equipment, and buildings	1 116.6	692.4	3
Capital expenditures, other than land	112.1	79.3	3
Gross book value of depreciable assets	130.9	81.7	3
	1 122.7	981.7	3
<b>AVERAGE PER EMPLOYEE</b>			
Payroll, all employees	do	do	do
Dollar value of business done	25.1	21.7	1
Value added††	117.5	94.4	1
	51.2	39.1	(W)
<b>AVERAGE PER CONSTRUCTION WORKER</b>			
Payroll, construction workers	do	do	do
Value of construction work <sup>1</sup>	22.7	20.5	1
Construction worker hours	136.7	107.9	1
	1 900.9	1 809.5	1
<b>AVERAGE PER OTHER EMPLOYEE</b>			
Payroll, other employees	do	do	do
	38.1	(NA)	1
<b>AVERAGE PER DOLLAR VALUE OF CONSTRUCTION WORK<sup>1</sup></b>			
Payroll, all employees	do	do	do
Cost of materials, components, supplies, and fuels	.217	.233	(W)
Cost of construction work subcontracted to others	.338	.396	(W)
Rental cost for machinery, equipment, and buildings	.236	.197	(W)
	.024	.023	2

<sup>1</sup>In earlier censuses, construction receipts only were collected. In 1987, the value of construction work was collected to better measure actual construction activity done during the year.



**Table 13. Selected Industry Ratios for Establishments With Payroll by State: 1987**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Location of establishment	Average number of employees** per establishment	Payroll per employee (\$1,000)	Construction worker hours per construction worker	Value of construction work per construction worker (\$1,000)	Average per dollar of value of construction work			
					Payroll, all employees	Cost of materials, components, supplies, and fuels	Cost of construction work sub-contracted to others	Rental cost for machinery, equipment, and buildings
<b>United States</b> -----	<b>41.0</b>	<b>25.1</b>	<b>1 900.9</b>	<b>136.7</b>	<b>.217</b>	<b>.338</b>	<b>.236</b>	<b>.024</b>
Alabama -----	40.8	20.8	2 045.6	125.4	.191	.400	.214	.013
Alaska -----	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Arizona -----	121.4	32.0	1 821.8	133.9	.298	(D)	.213	.058
Arkansas -----	27.4	17.5	1 039.2	150.7	.135	(D)	.286	.009
California -----	36.6	28.8	1 784.4	183.7	.185	.208	.294	.022
Colorado -----	38.5	20.8	1 877.1	179.8	.133	.406	.403	.039
Connecticut -----	44.5	33.0	2 130.1	170.4	.234	(D)	.104	.030
Delaware -----	*15.3	*34.8	(S)	(D)	(D)	(D)	(D)	(D)
District of Columbia -----	-	-	-	-	-	-	-	-
Florida -----	44.9	20.0	1 789.5	152.2	.158	.376	.319	.019
Georgia -----	57.7	21.6	2 251.1	131.3	.214	(D)	.226	.014
Hawaii -----	-	-	-	-	-	-	-	-
Idaho -----	19.4	25.8	1 918.7	155.2	.210	(D)	.182	.069
Illinois -----	42.0	25.6	1 788.2	125.5	.238	.361	.221	.026
Indiana -----	39.4	24.0	1 842.8	154.7	.184	.308	.244	.012
Iowa -----	28.3	21.1	2 067.4	128.7	.191	.466	.193	.011
Kansas -----	22.1	23.5	1 706.2	115.2	.235	.352	.214	.017
Kentucky -----	25.7	22.2	2 007.1	126.9	.205	.464	.211	.015
Louisiana -----	43.9	18.9	1 584.7	104.8	.206	(D)	.227	.016
Maine -----	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Maryland -----	70.8	30.2	2 031.3	140.4	.260	(D)	.268	.018
Massachusetts -----	27.1	27.8	1 882.2	139.6	.237	(D)	.238	.067
Michigan -----	20.5	33.9	1 896.8	199.4	.204	.388	.264	.010
Minnesota -----	83.1	29.2	1 935.3	133.5	.267	(D)	.149	.024
Mississippi -----	48.6	19.8	2 013.7	117.2	.188	.321	.295	.025
Missouri -----	25.1	19.3	1 574.1	114.2	.200	(D)	.180	.013
Montana -----	*8.6	19.2	*1 234.7	76.1	.288	(D)	*.101	*.015
Nebraska -----	10.1	18.0	1 912.9	100.6	.217	(D)	.213	.007
Nevada -----	(D)	(D)	(D)	(D)	.285	(D)	(D)	(D)
New Hampshire -----	26.0	25.5	1 717.0	148.5	.211	(D)	.108	(D)
New Jersey -----	56.5	32.9	1 911.0	166.6	.244	.271	.191	.033
New Mexico -----	*85.5	(D)	2 395.3	(D)	(D)	(D)	(D)	(D)
New York -----	61.8	25.0	1 681.6	102.7	.277	.244	.229	.037
North Carolina -----	65.2	20.6	1 995.9	98.4	.243	.422	.269	.027
North Dakota -----	43.6	24.2	2 054.3	114.6	.250	.366	.178	(D)
Ohio -----	37.7	30.3	1 751.9	152.9	.247	.383	.190	.031
Oklahoma -----	20.9	19.3	1 683.6	108.5	.201	(D)	.100	.013
Oregon -----	24.8	29.0	1 537.7	183.3	.218	.355	.248	.038
Pennsylvania -----	52.7	31.2	1 834.3	161.7	.231	.287	.269	.022
Rhode Island -----	*14.5	34.9	(D)	251.5	.189	(D)	*.238	(D)
South Carolina -----	55.0	24.3	2 320.2	155.0	.195	.457	.234	.029
South Dakota -----	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Tennessee -----	28.6	19.4	2 294.2	105.5	.210	.349	.190	.028
Texas -----	61.7	19.7	2 151.2	115.1	.194	.293	.226	.024
Utah -----	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Vermont -----	*27.7	21.5	1 597.0	114.6	.214	.317	.164	.028
Virginia -----	81.3	22.6	2 023.6	136.6	.198	(D)	.273	.014
Washington -----	30.6	23.4	1 826.5	185.3	.153	.289	.332	.012
West Virginia -----	36.3	27.9	2 008.1	126.2	.258	(D)	.163	.018
Wisconsin -----	61.1	35.3	2 024.2	189.1	.232	(D)	.229	.010
Wyoming -----	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)





# APPENDIX A.

## Explanation of Terms

**Construction**—Is composed of three broad categories:

1. **New construction**—Includes the complete, original erection of structures and essential service facilities and the initial installation of integral equipment such as elevators, and plumbing, heating, and air-conditioning supplies and equipment.
2. **Additions, alterations or reconstruction**—Includes construction activity making structural changes to existing facilities. Generally, this type of activity is considered a capital investment in the property.
3. **Maintenance and repair**—Includes construction done for the purpose of upkeep of property rather than additional investment in the property.

Examples of the general distinction between maintenance and repair and reconstruction are provided here: roof repairs, including the replacement of shingles, gutters, etc., are classified under maintenance and repairs. A complete reroofing, however, is classified as reconstruction.

**Number of establishments in business during year**—Includes all establishments that were in business at any time during the year. It covers all full-year and part-year operations. Construction establishments which were inactive or idle for the entire year were not included.

**Proprietors and working partners**—These data were not collected on the census report forms. The data shown are based on crediting each sole proprietorship establishment with one active proprietor and each partnership establishment with two working partners.

**All employees**—Comprise all full-time and part-time employees on the payrolls of construction establishments, who worked or received pay for any part of the pay period including the 12th of March, May, August, and November. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included, but proprietors and partners of unincorporated firms are not.

All employees is the sum of all employees during the pay periods including the 12th of March, May, August, and November, divided by 4.

**Construction workers**—Includes all workers up through the working foreman level directly engaged in construction operations, such as painters, carpenters, plumbers, and electricians. Included are journeymen, mechanics, apprentices, laborers, truck drivers and helpers, equipment

operators, and on-site record keepers and security guards. Supervisory employees above the working foreman level are excluded from this category but are included in the "other employees" category.

**Other employees**—Includes employees in executive, purchasing, accounting, personnel, professional, technical activities, and routine office functions. Also included are supervisory employees above the working foreman level.

**Construction worker hours**—Includes the total number of hours worked by construction workers. Construction worker hours were collected for each of the four quarters of 1987.

**Payroll**—Includes the gross earnings paid in the calendar year 1987 to all employees on the payroll of construction establishments. It includes all forms of compensation such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of these establishments, if a corporation, but excludes payments to the proprietor or partners, if an unincorporated concern.

**Employer costs for fringe benefits (supplemental labor costs)**—Represents expenditures made by the employer during 1987 for legally required and voluntary fringe benefit programs for employees.

**Legally required contributions**—Include Social Security contributions, unemployment compensation, workman's compensation, and State temporary disability payments.

**Voluntary payments**—Include life insurance premiums, pension plans, insurance premiums on hospital and medical plans, welfare plans, and union negotiated benefits.

Dollar value of business done comprises the following detail:

**Value of construction work done**—Includes all value of construction work done during 1987 for construction work performed by general contractors, special trades contractors, subcontractors, and land development and improvement work. Included is new construction, additions and alterations or reconstruction, and maintenance and repair construction work. Also included is the value of any construction work done by the reporting establishments for themselves.



Builders were instructed to include the value of buildings and other structures built or being built for sale in 1987 but not sold. They were to include the costs of such construction plus normal profit. Also included is the cost of construction work done on buildings for rent or lease.

Establishments engaged in the sale and installation of such construction components as plumbing, heating, and central air conditioning supplies and equipment; lumber and building materials; paint, glass, and wallpaper; and electrical and wiring supplies, elevators or escalators, etc., were instructed to include both the value for the installation and the receipts covering the price of the items installed.

Excluded was the cost of industrial and other specialized machinery and equipment which are not an integral part of a structure.

**Land receipts**—Includes receipts from the sale of land, whether held for sale or sold in connection with the sale of houses and other structures. It excludes the value of any improvements made to the land prior to the sale. (That value was to be included in the value of construction work done.)

**Other business receipts**—Includes business receipts not reported as value of construction work done or land receipts. The item includes business receipts from retail and wholesale trade, rental of equipment, manufacturing, transportation, legal service, insurance, finance, rental of property and other real estate operations, and other nonconstruction activities. Receipts for separately definable architectural and engineering work for others are also included here.

Excluded was the value of construction work done and receipts from other business operations in foreign countries and non-operating income such as interest and dividends.

**Net value of construction work**—Derived for each establishment by subtracting the costs for construction work subcontracted to others from the value of construction work done. (For a further explanation see "Duplication in Value of Construction Work" section in the Introduction.)

**Value added**—Derived for each establishment, value added is equal to dollar value of business done, less costs for construction work subcontracted to others, and costs for materials, components, supplies and fuels. For SIC 6552 and SIC 1531, for which land receipts are significant, land receipts are also subtracted from dollar value of business done. (For a further explanation see "Duplication in Value of Construction Work" section in the Introduction.)

**Selected costs**—Represents the costs for materials, components, and supplies; costs for construction work subcontracted to others; and costs for selected power, fuels, and lubricants. Capital expenditures and rental costs for machinery, equipment, and structures are shown elsewhere.

Costs for materials, components, and supplies include:

- total costs to reporting establishments during 1987 for the purchase of all materials, components, and supplies, except fuels. (Supplies include expendable tools which are charged to current accounts.)
- freight and other direct charges should represent only amount paid after discounts, and the value of materials, components, and supplies obtained from other establishments of the respondent's company.
- costs for materials, components, and supplies used by the reporting establishments in the construction or reconstruction of buildings/structures for themselves which are chargeable to their fixed assets accounts, are included in this item as are costs for materials bought and resold to others.
- costs made for direct purchases of materials, components, and supplies even though the purchases were subsequently provided to subcontractors for their use.

Excluded from this item are:

- industrial and other specialized machinery and equipment, such as printing presses; computer systems; etc., which are not an integral part of a structure
- materials furnished to contractors by the owners of projects.

Costs for construction work subcontracted to others include:

- all costs during 1987 for construction work subcontracted out to other construction contractors.

Excluded from this item are:

- The costs to the reporting establishment for its purchases of materials, components, and supplies, provided to a subcontractor for his use. Such costs are reported under a separate category, "costs for materials, components, and supplies."
- costs for the rental of machinery or equipment.

Costs for selected power, fuels, and lubricants include:

- costs for fuels, lubricants, and electric energy purchased during the year from other companies, or received from other establishments of the company.
- costs for natural and manufactured gas, fuel oil, coal and coke products, etc.

**Rental costs for machinery, equipment, and buildings**—Includes all costs during 1987 for renting or leasing construction machinery and equipment, transportation equipment, production equipment, office equipment, furniture and fixtures, scaffolding, office space, and buildings. It



excludes costs for the rental of land. It also excludes costs under agreements which, in effect, are conditional sales contracts such as capital leases. Such costs are included in "capital expenditures."

**Selected purchased services**—Includes all costs during 1987 for communication services purchased from other companies or from other establishments of the company. It also includes the cost of all repairs made to structures and equipment by outside companies, or from other establishments of the same company. It includes only the cost of that repair necessary to maintain property and equipment. It excludes the cost of improvements that increase the value of property, or the cost of adapting it for another use. Such costs are included in "capital expenditures".

**Assets and depreciation**—Refers to the original cost of all fixed tangible assets such as buildings and other structures (offices, shops, etc.); stationary machinery (generators, shop equipment, etc.); mobile machinery (tractors, trucks, etc.); and other equipment (office furniture and fixtures, etc.). Not included are such items as current assets, depletable assets, intangible assets, and nondepreciable assets.

Data on assets and depreciation were collected separately for: (1) buildings and other structures, additions, and related facilities; and, (2) machinery and equipment.

Respondents were also asked to report capitalized expenditures, depreciation charges, and the gross value of assets sold, retired, scrapped, destroyed, etc., during 1987.

**Capital expenditures**—Refers to all costs actually incurred during 1987 which were or would be chargeable to the fixed assets accounts of the reporting establishments and which were of the type for which depreciation accounts are ordinarily maintained. These expenditures cover the acquisition, the construction, and the major alteration of the reporting establishment's own buildings and other structures, whether purchased, constructed under contract, or constructed by the reporting establishment's own forces; and the acquisition of machinery and equipment.

If leasing arrangements met the criteria set down by the Financial Accounting Standards Board (FASB) for a capital lease, respondents were instructed to report the original cost or market value of that equipment or building as a fixed asset and capital expenditure if acquired during 1987.

If capital expenditures were not recorded directly at the establishment level but handled centrally at the company or division level, respondents were requested to report appropriate estimates for the individual establishments.

**Inventories**—Includes all of the materials and supplies that are owned regardless of where they are held. Excludes materials which are owned by others, but held by the reporting establishment.

Builders who built on their own account for sale were requested to report work in progress and finished units not sold for buildings and other structures built for sale.

Inventories of multi-establishment companies were instructed to be reported by the establishment that is responsible for the inventories even if these inventories were held at a separate location.

**Ownership of construction projects**—This item shows the distribution of the value of construction work done by ownership of the project, that is, Government owned or privately owned. This classification relates to the ownership of the projects or work undertaken during the construction phase. Government owned projects are shown separately for Federal, and State and local governments.

**Value of construction work subcontracted in from others**—Includes the value of construction work during 1987 for work done by reporting establishments for other construction contractors or builders. Establishments were asked to report the approximate percent of total value of construction work accounted for by such work, and the percentages reported were applied to the reported value of construction work to develop a value for this item.

**Types of construction**—This item provides data by the types of buildings, structures, or other facilities being constructed or worked on by construction establishments in 1987. Respondents were instructed that each building, structure, or other facility should be classified in terms of its function. For example, a restaurant building was to be classified in the restaurant category whether it was designed as a commercial restaurant building or an auxiliary unit of an educational institution. If respondents worked on more than one type of building or structure in a multibuilding complex, they were instructed to report separately for each building or type of structure. If they worked on a building that had more than one purpose, i.e, office and residential, or commercial, they were to classify the building by major purpose.

In addition all respondents were requested to report the percentage of the value of construction work done for new construction, additions, alterations, or reconstruction, and maintenance and repair work for each of these types. See the definition of "Construction" for the meanings of these terms.

Building construction:

- **Single-family houses, detached**—Includes all residential buildings constructed for one family use.
- **Single-family houses, attached (include townhouses)**—Includes all residential buildings with two or more living quarters side by side, completely independent of one another, and separated by an unbroken wall from ground to roof.
- **Apartment buildings with two or more apartments**—Includes high-rise, low-rise, or any structures containing two or more housing units (excluding attached single-family houses and townhouses described above).
- **Hotels and motels**—Includes hotels, motels, and tourist cabins intended for transient accommodations.



- **Other residential buildings**—Includes dormitories, fraternity and sorority houses, nurses homes, and other nonhousekeeping residential structures.
- **Office buildings**—Includes all buildings which are used primarily for office space or for government administrative offices. Also included are banks or financial buildings which are three stories or more.
- **Other commercial buildings, such as stores, restaurants, and automobile service stations**—Includes all buildings which are intended for use primarily in the wholesale, retail, and service trades. For example, shopping centers, department stores, drug stores, restaurants, public garages, auto service stations, and one or two story bank or financial institutions.
- **Industrial buildings**—Includes all industrial buildings and plants which are used to house production and assembly activities. Heavy industrial facilities such as blast furnaces, petroleum refineries, chemical complexes, etc., are not included in this category, but under nonbuilding construction.
- **Warehouses**—Includes commercial warehouses, cold storage plants, grain elevators, mini-warehouses, and other such storage buildings.
- **Religious buildings**—Includes all buildings which are intended for religious services or functions, such as churches, synagogues, convents, monasteries, and seminaries.
- **Educational buildings**—Includes all buildings which are used directly in administrative and instructional activities, such as colleges, universities, elementary and secondary schools, correspondence, commercial, and trade schools. Libraries, museums, and art galleries, as well as laboratories which are not a part of a manufacturing establishment, are also included.
- **Hospitals and institutional buildings**—Includes all buildings which are intended to provide hospital and institutional care, such as clinics, infirmaries, sanitariums, nursing homes, homes for the aged, and orphanages.
- **Farm buildings, nonresidential**—Includes nonresidential farm buildings such as barns, poultry houses, implement sheds, and farm silos.
- **Amusement, social, and recreational buildings**—Includes buildings which are used primarily for entertainment, social and recreational activities, such as sports arenas, theaters, music halls, golf and country club buildings, skating rinks, bowling alleys, and indoor swimming pools.
- **Other nonresidential buildings**—Includes nonresidential buildings which are not classified elsewhere, such as fire stations, prisons, civic centers, bus and air passenger terminals and hangars.

#### Nonbuilding construction:

- **Highways, streets and related work, such as installation of guardrails, highway signs, etc.**—Includes streets, roads, alleys, sidewalks, curbs and gutters, culverts, right-of-way drainage, erosion control and lighting. Also includes earthwork protective structures when used in connection with road improvements.
- **Outdoor swimming pools**—Includes wading pools and reflecting pools.
- **Recreational facilities**—Includes athletic fields, golf courses, outdoor tennis courts, trails, and camps.
- **Bridges and elevated highways**—Includes viaducts and overpasses; roads, highways, railroads, and causeways built on structural supports.
- **Tunnels**—Includes highway, pedestrian, and railroad tunnels.
- **Railroad construction**—Includes the construction of railroad beds, tracks, freight yards, and signal towers.
- **Subway construction**—Includes urban mass transit subway systems above or below ground.
- **Dam and reservoir construction**—Includes hydroelectric, water supply, and flood control dams and reservoirs.
- **Marine construction**—Includes dredging, underwater rock removal, breakwaters, navigational channels, jetties, and locks.
- **Harbor and port facilities**—Includes docks, piers, and wharves.
- **Conservation and development construction**—Includes land reclamation, irrigation projects, drainage canals, levees, and flood control projects.
- **Power and communication transmission lines, towers, and related facilities**—Includes electric power lines, telephone and telegraph lines, fiber optic cables, cable television lines, television and radio towers, electric light and power facilities.
- **Power plants, except nuclear**—Includes electric and steam generating plants.
- **Power plants, nuclear**—Includes atomic energy plants, and nuclear reactors.
- **Sewers, sewerlines, and related facilities**—Includes sanitary and storm sewers, and related facilities.
- **Sewage treatment plants**—Includes sewage treatment and waste disposal plants.
- **Water mains and related facilities**—Includes water supply systems and related facilities.



- **Water treatment plants**—Includes water filtration and water softening plants.
- **Pipeline construction other than sewer or waterlines**—Includes pipelines for the transmission of gas, petroleum products, and liquefied gases.
- **Blast furnaces, petroleum refineries, chemical complexes, etc.**—Includes coke ovens, and mining appurtenances such as tipples and washeries.
- **Other nonbuilding construction**—Includes all types of nonbuilding construction, not included elsewhere.





## APPENDIX B.

### Standard Industrial Classification Titles for Industry Groups and Industries

SIC code	Industry titles	SIC code	Industry titles
<b>15</b>	<b>BUILDING CONSTRUCTION—GENERAL CONTRACTORS AND OPERATIVE BUILDERS</b>	<b>17</b>	<b>CONSTRUCTION—SPECIAL TRADE CONTRACTORS—Con.</b>
<b>152</b>	<b>General Building Contractors—Residential Buildings</b>	<b>173</b>	<b>Electrical Work Special Trade Contractors</b>
1521	General Contractors—Single-Family Houses	1731	Electrical Work Special Trade Contractors
1522	General Contractors—Residential Buildings, Other Than Single-Family	<b>174</b>	<b>Masonry, Stone Work Tile Setting, and Plastering Special Trade Contractors</b>
<b>153</b>	<b>Operative Builders</b>	1741	Masonry, Stone Setting, and Other Stone Work Special Trade Contractors
1531	Operative Builders	1742	Plastering, Drywall, Acoustical, and Insulation Work Special Trade Contractors
<b>154</b>	<b>General Building Contractors—Nonresidential Buildings</b>	1743	Terrazzo, Tile, Marble, and Mosaic Work Special Trade Contractors
1541	General Contractors—Industrial Buildings and Warehouses	<b>175</b>	<b>Carpentry and Floor Work Special Trade Contractors</b>
1542	General Contractors—Nonresidential Buildings, Other Than Industrial Buildings and Warehouses	1751	Carpentry Work Special Trade Contractors
<b>16</b>	<b>HEAVY CONSTRUCTION OTHER THAN BUILDING CONSTRUCTION—CONTRACTORS</b>	1752	Floor Laying and Other Floor Work Special Trade Contractors, Not Elsewhere Classified
<b>161</b>	<b>Highway and Street Construction, Except Elevated Highways</b>	<b>176</b>	<b>Roofing, Siding, and Sheet Metal Work Special Trade Contractors</b>
1611	Highway and Street Construction Contractors, Except Elevated Highways	1761	Roofing, Siding, and Sheet Metal Work Special Trade Contractors
<b>162</b>	<b>Heavy Construction, Except Highway and Street Construction</b>	<b>177</b>	<b>Concrete Work Special Trade Contractors</b>
1622	Bridge, Tunnel, and Elevated Highway Construction Contractors	1771	Concrete Work Special Trade Contractors
1623	Water, Sewer, Pipeline, and Communications and Powerline Construction	<b>178</b>	<b>Water Well Drilling Special Trade Contractors</b>
1629	Heavy Construction, Not Elsewhere Classified	1781	Water Well Drilling Special Trade Contractors
<b>17</b>	<b>CONSTRUCTION—SPECIAL TRADE CONTRACTORS</b>	<b>179</b>	<b>Miscellaneous Special Trade Contractors</b>
<b>171</b>	<b>Plumbing, Heating, and Air-Conditioning Special Trade Contractors</b>	1791	Structural Steel Erection Special Trade Contractors
1711	Plumbing, Heating, and Air-Conditioning Special Trade Contractors	1793	Glass and Glazing Work Special Trade Contractors
<b>172</b>	<b>Painting and Paper Hanging Special Trade Contractors</b>	1794	Excavation Work Special Trade Contractors
1721	Painting and Paper Hanging Special Trade Contractors	1795	Wrecking and Demolition Work Special Trade Contractors
		1796	Installation or Erection of Building Equipment, Special Trade Contractors, Not Elsewhere Classified
		1799	Special Trade Contractors, Not Elsewhere Classified
		<b>6552</b>	<b>LAND SUBDIVIDERS AND DEVELOPERS, EXCEPT CEMETERIES</b>





# **APPENDIX C.**

## **Geographic Divisions and States**

### **NEW ENGLAND STATES**

Connecticut  
Maine  
Massachusetts  
New Hampshire  
Rhode Island  
Vermont

### **MIDDLE ATLANTIC STATES**

New Jersey  
New York  
Pennsylvania

### **EAST NORTH CENTRAL STATES**

Illinois  
Indiana  
Michigan  
Ohio  
Wisconsin

### **WEST NORTH CENTRAL STATES**

Iowa  
Kansas  
Minnesota  
Missouri  
Nebraska  
North Dakota  
South Dakota

### **SOUTH ATLANTIC STATES**

Delaware  
District of Columbia  
Florida  
Georgia  
Maryland

### **SOUTH ATLANTIC STATES—Con.**

North Carolina  
South Carolina  
Virginia  
West Virginia

### **EAST SOUTH CENTRAL STATES**

Alabama  
Kentucky  
Mississippi  
Tennessee

### **WEST SOUTH CENTRAL STATES**

Arkansas  
Louisiana  
Oklahoma  
Texas

### **MOUNTAIN STATES**

Arizona  
Colorado  
Idaho  
Montana  
Nevada  
New Mexico  
Utah  
Wyoming

### **PACIFIC STATES**

Alaska  
California  
Hawaii  
Oregon  
Washington



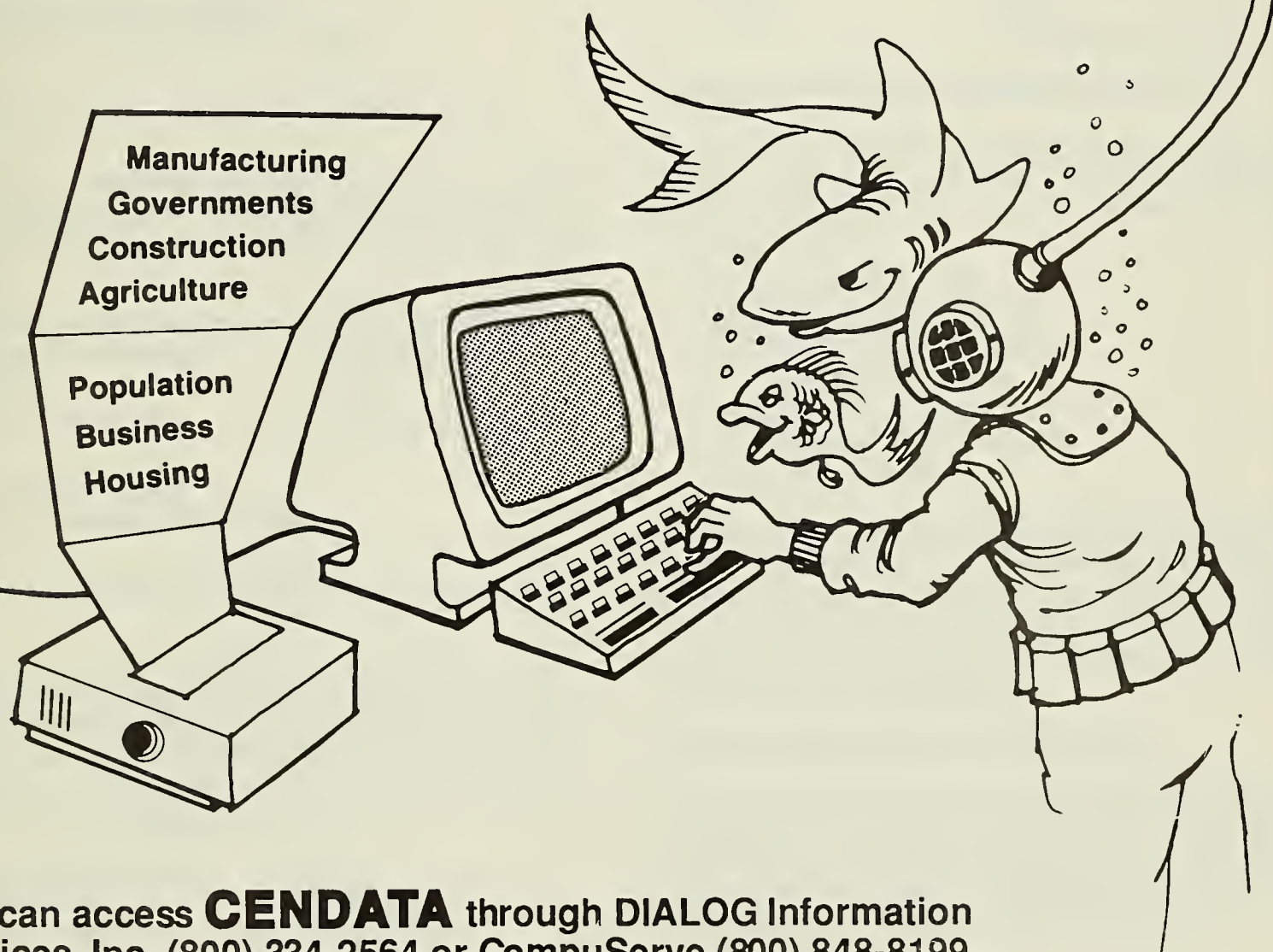


# WHAT'S YOUR LINE?

## It's ONLINE!

NOW whatever you do, wherever you go, we've got data for you.  
In more depth than ever—

**CENDATA™**—the Census Bureau's online system—instantly provides the facts you need for decisions in virtually every area. It covers everything from ingots to elections, from rental vacancies to retail sales, from median family income to milk cows in Minnesota.



You can access **CENDATA** through DIALOG Information Services, Inc. (800) 334-2564 or CompuServe (800) 848-8199. Or call the Census Bureau on (301) 763-2074 for more information.

Now key statistics are just a phone call away.





# PUBLICATION PROGRAM

## 1987 CENSUS OF CONSTRUCTION INDUSTRIES

The Census of Construction Industries is taken once every 5 years. The census covers all establishments engaged in construction, including:

- Building contractors
- Heavy construction contractors
- Special trade contractors (including plumbers, carpenters, painters, electricians)
- Land developers and subdividers

Data products in the Census of Construction Industries are issued in 4 publication series and in 3 other media:

- Printed reports [P]
- CD-ROM [C]
- Computer tape [T]
- Highlights online [+]

### Preliminary Industry Series (CC87-I-1(P) through CC87-I-28(P))

(Available November 1988 through May 1989) [P]

Twenty-seven separate industry reports and a United States summary report, providing national statistics for establishments with payroll. Statistics shown for 1987 include:

- Number of establishments
- Number of employees
- Payroll
- Hours worked
- Value of construction work done, by type of structure
- Selected operating costs

### Final Industry Series (CC87-I-1 through CC87-I-28)

(Available June 1989 through November 1989) [P] [C] [T] [+]

Twenty-seven separate industry reports and a United States summary report, providing statistics for the Nation and individual States on establishments with payroll. These reports update figures from the preliminary industry series (employment, payroll, value of construction, etc.) and provide measures of the following:

- Capital expenditures
- Inventories
- Industry profiles
- Assets
- Depreciation
- And much more

## Geographic Area Series (CC87-A-1 through CC87-A-10)

(Available January 1990 through March 1990) [P] [C] [T] [+]

Nine reports on the construction industries, representing each census geographic division, and a United States summary report. Regional reports provide detailed data for States and metropolitan statistical areas.

## Subject Report—Legal Form of Organization and Type of Operation (CC87-S-1)

(Available May 1990) [P]

One report providing selected national statistics for each industry by legal form of organization and type of operation. This report includes data for establishments with and without payroll. Data in this report include—

- Employment
- Payroll
- Value of construction work done
- Selected operating costs

## OTHER ECONOMIC CENSUSES REPORTS

The Census of Construction Industries is part of the 1987 Economic Censuses. These are conducted at five-year intervals in years ending in 2 and 7 and consist of seven separate censuses:

- Census of Retail Trade
- Census of Wholesale Trade
- Census of Service Industries
- Census of Transportation
- Census of Manufactures
- Census of Mineral Industries
- Census of Construction

...plus several related programs: enterprise statistics; information on minority-owned and women-owned businesses; and the Census of Outlying Areas, including separate economic censuses of Puerto Rico and other outlying areas. The Census of Agriculture and Census of Governments are conducted separately.

## HOW TO ORDER DATA PRODUCTS

Order forms for the specific reports and other data products may be obtained from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233. If you have any questions, call Census Customer Services 1-(301)-763-4100.

CB/Bureau of the Census Library



5 0673 01038471 0

CC87-l-7

Bridge, Tunnel, and Elevated Highway Construction Contractors

1987 Census of C

For

Not to be

Industries